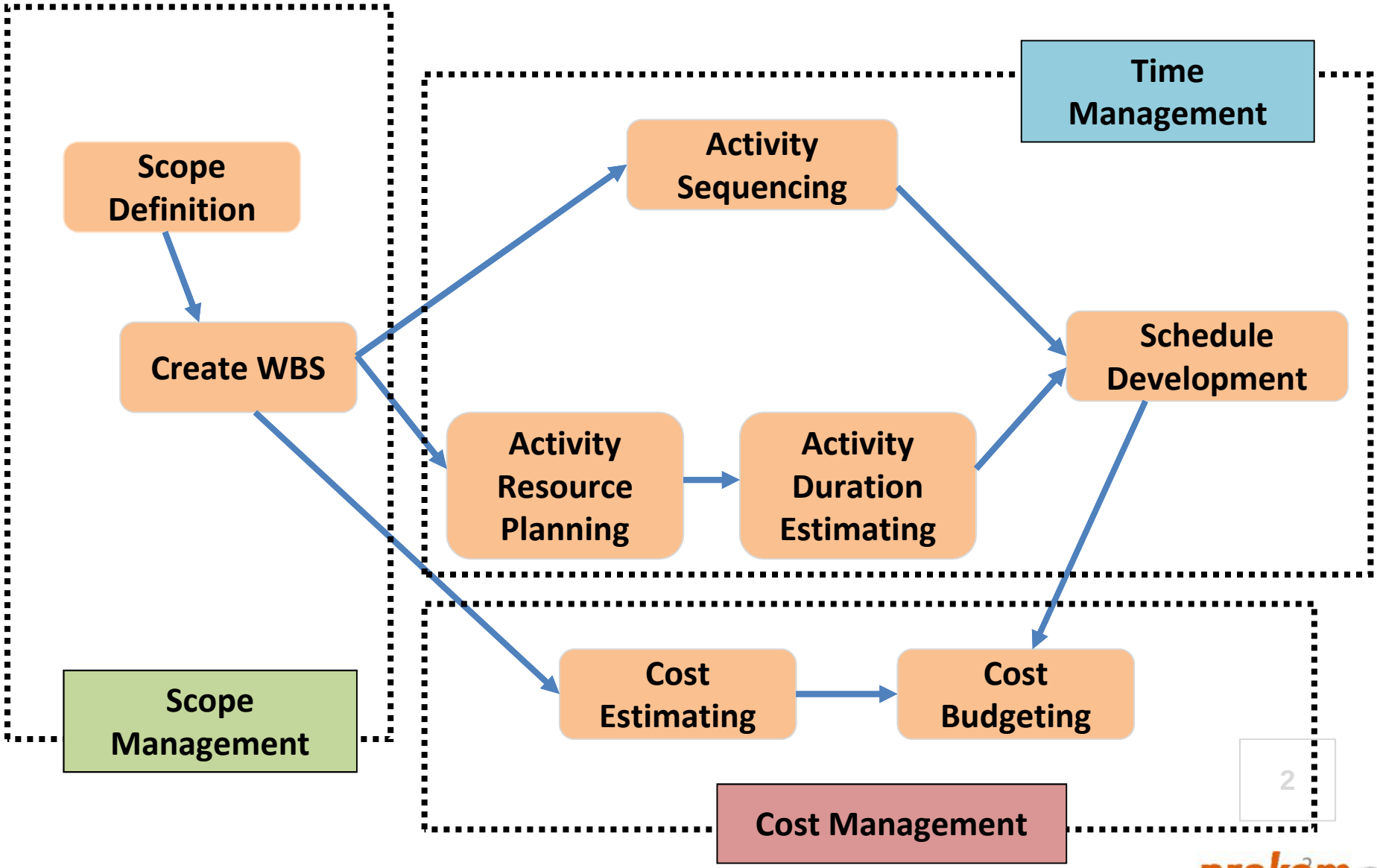
FOLDER 9

PENGURUSAN KOS

- Cost Estimating
- Cost Budgeting
- S-Curve

key planning process for scheduling & estimating..



prokom PROJECT MANAGEMENT EXCELLENCE

Cost Estimating & Budgeting

Perancangan Kos Projek

Merupakan proses yang diperlukan untuk memastikan projek dapat disiapkan dalam lingkungan bajet yang diluluskan

Perancangan Kos Projek

Anggaran Kos

- Kos disediakan pada tahap sub task
- Berkaitan dengan kos sumber (disediakan oleh kontraktor)
- Berdasarkan kos BQ (diisi dalam column fixed cost (MSP))

Bajet Kos

- Bajet kontraktor untuk melaksanakan kerja berdasarkan anggaran kos sumber
- Bajet pelanggan berdasarkan harga kontrak (kos kontrak)
- Merupakan kos baseline/ S-Curve kewangan (kos kontrak)

Anggaran Kos (Cost Estimating)

1.0 specialist salary	1	x	RM	70,000.00	x	4 /Month	=	RM	280,000.00
2.0 Staff a) J54	1	x	RM	9,000.00	x	20 /Month	=	RM	180,000.00
b) J52	1	x	RM	7,000.00	x	20 /Month	=	RM	140,000.00
c) J48	2	x	RM	5,000.00	x	20 /Month	=	RM	200,000.00
d) J41	2	x	RM	3,000.00	x	20 /Month	=	RM	120,000.00
3.0 Workshop									
Nos of people attend	10	x	RM	250.00			=	RM	2,500.00
Fesilitator	4	x	RM	200.00	x	8 /Jam	=	RM	800.00
Venue	2	x	RM	500.00			=	RM	1,000.00
Refreshment	14	x	RM	50.00			=	RM	700.00
4.0 Meeting	10	x	RM	350.00			=	RM	3,500.00
5.0 Documentation Submission	5	x	RM	2,500.00			=	RM	12,500.00
6.0 Training									
a) Top Management	1	x	RM	15,000.00			=	RM	15,000.00
b) Project Team	4	x	RM	1,000.00			=	RM	4,000.00
c) Project Manager	1	x	RM	10,000.00			=	RM	10,000.00
d) JKR's Profesional	2	x	RM	3,000.00			=	RM	6,000.00
e) JKR's Supporting Staff	2	x	RM	6,000.00			=	RM	12,000.00
						TOTAL	=	RM	988,000.00

Bajet Kos (Cost Budgeting)

Contoh:

a) **Kos keseluruhan projek = RM 270 juta**

b) **Kos lain seperti kerja pengambilan tanah (LA) = RM 2.1 juta**

Jumlah kos (a) & (b) merupakan bajet yang diperuntukkan (bajet kos)

MICROSOFT PROJECT

HANDS ON 9

Value of Works

- Cost Of Works As Per BQ

Refer to..

Value of Works table
in Folder 1

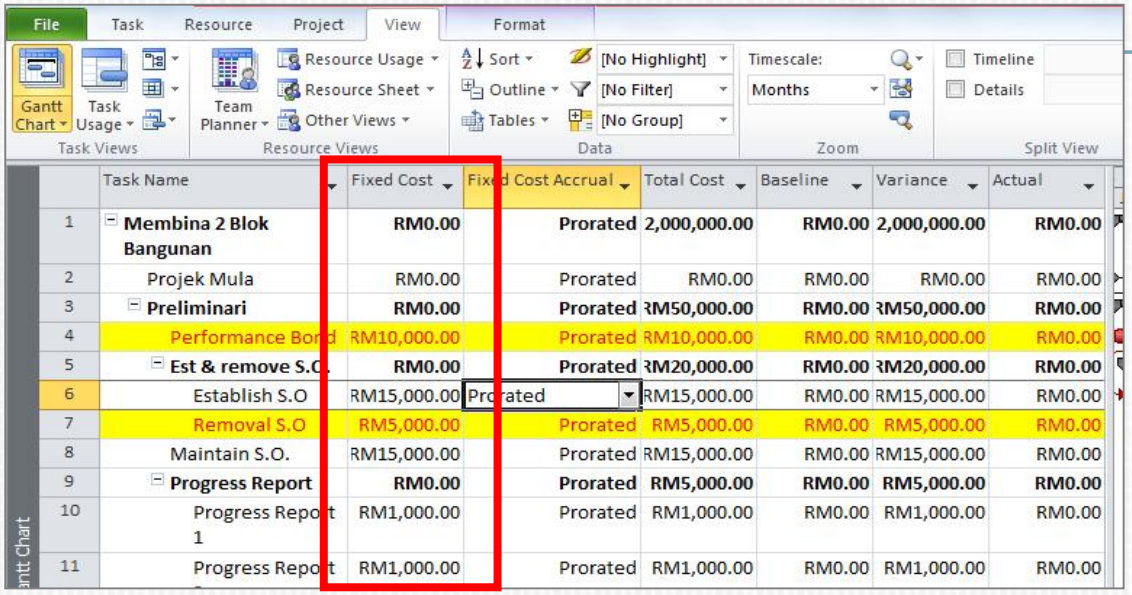
Memasukkan Kos Aktiviti

1 View → 2 Tables → 3 Cost

Cost Table

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remaining
1	Membina 2 Blok Bangun	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
2	Projek Mula	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
3	Preliminari	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
4	Performance Bond	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
5	Est & remove S.O.	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
6	Establish S.O	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
7	Removal S.O	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
8	Maintain S.O.	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
9	Progress Report	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00
10	Progress Report 1	$0.00	Prorated	$0.00	$0.00	$0.00	$0.00	$0.00

Memasukkan Kos Aktiviti



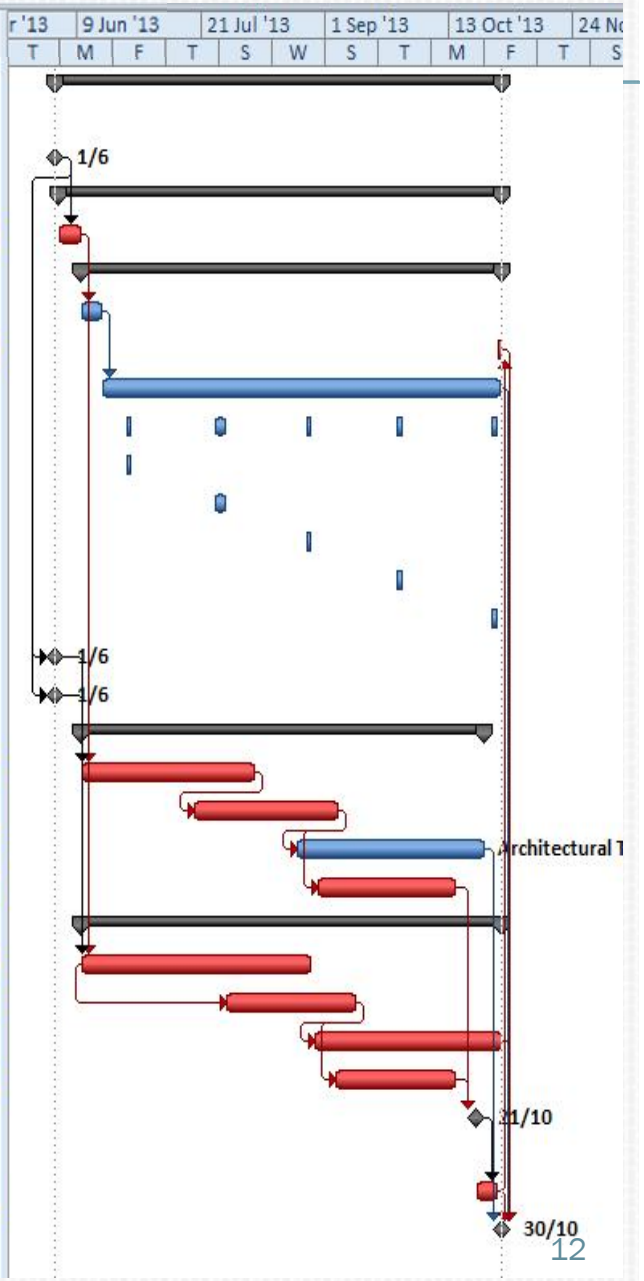
	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual
1	**Membina 2 Blok Bangunan**	**RM0.00**	**Prorated**	**2,000,000.00**	**RM0.00**	**2,000,000.00**	**RM0.00**
2	Projek Mula	RM0.00	Prorated	RM0.00	RM0.00	RM0.00	RM0.00
3	**Preliminari**	**RM0.00**	**Prorated**	**RM50,000.00**	**RM0.00**	**RM50,000.00**	**RM0.00**
4	Performance Bond	RM10,000.00	Prorated	RM10,000.00	RM0.00	RM10,000.00	RM0.00
5	**Est & remove S.O.**	**RM0.00**	**Prorated**	**RM20,000.00**	**RM0.00**	**RM20,000.00**	**RM0.00**
6	Establish S.O	RM15,000.00	Prorated	RM15,000.00	RM0.00	RM15,000.00	RM0.00
7	Removal S.O	RM5,000.00	Prorated	RM5,000.00	RM0.00	RM5,000.00	RM0.00
8	Maintain S.O.	RM15,000.00	Prorated	RM15,000.00	RM0.00	RM15,000.00	RM0.00
9	**Progress Report**	**RM0.00**	**Prorated**	**RM5,000.00**	**RM0.00**	**RM5,000.00**	**RM0.00**
10	Progress Report 1	RM1,000.00	Prorated	RM1,000.00	RM0.00	RM1,000.00	RM0.00
11	Progress Report	RM1,000.00	Prorated	RM1,000.00	RM0.00	RM1,000.00	RM0.00

Project Total Cost

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual
1	**Membina 2 Blok Bangunan**	**RM0.00**	**Prorated**	**2,000,000.00**	**RM0.00**	**2,000,000.00**	**RM0.00**
2	Projek Mula	RM0.00	Prorated	RM0.00	RM0.00	RM0.00	RM0.00
3	**Preliminari**	**RM0.00**	**Prorated**	**RM50,000.00**	**RM0.00**	**RM50,000.00**	**RM0.00**
4	Performance Bond	RM10,000.00	Prorated	RM10,000.00	RM0.00	RM10,000.00	RM0.00
5	**Est & remove S.O.**	**RM0.00**	**Prorated**	**RM20,000.00**	**RM0.00**	**RM20,000.00**	**RM0.00**
6	Establish S.O	RM15,000.00	Prorated	RM15,000.00	RM0.00	RM15,000.00	RM0.00
7	Removal S.O	RM5,000.00	Prorated	RM5,000.00	RM0.00	RM5,000.00	RM0.00
8	Maintain S.O.	RM15,000.00	Prorated	RM15,000.00	RM0.00	RM15,000.00	RM0.00
9	**Progress Report**	**RM0.00**	**Prorated**	**RM5,000.00**	**RM0.00**	**RM5,000.00**	**RM0.00**
10	Progress Report 1	RM1,000.00	Prorated	RM1,000.00	RM0.00	RM1,000.00	RM0.00

Fixed Cost & Total Cost

	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline
1	**Membina 2 Blok Bangunan**	**RM0.00**	**Prorated**	**RM2,000,000.00**	**RM2,000,000.00**
2	Projek Mula	RM0.00	Prorated	RM0.00	RM0.00
3	**Prelinimaries**	**RM0.00**	**Prorated**	**RM50,000.00**	**RM50,000.00**
4	Performance Bond	RM10,000.00	Prorated	RM10,000.00	RM10,000.00
5	**Est. & Remove S.O**	**RM0.00**	**Prorated**	**RM20,000.00**	**RM20,000.00**
6	Establish S.O	RM15,000.00	Prorated	RM15,000.00	RM15,000.00
7	Removal S.O	RM5,000.00	Prorated	RM5,000.00	RM5,000.00
8	Maintain S.O	RM15,000.00	Prorated	RM15,000.00	RM15,000.00
9	**Progress Report**	**RM0.00**	**Prorated**	**RM5,000.00**	**RM5,000.00**
10	Progress Report 1	RM1,000.00	Prorated	RM1,000.00	RM1,000.00
11	Progress Report 2	RM1,000.00	Prorated	RM1,000.00	RM1,000.00
12	Progress Report 3	RM1,000.00	Prorated	RM1,000.00	RM1,000.00
13	Progress Report 4	RM1,000.00	Prorated	RM1,000.00	RM1,000.00
14	Progress Report 5	RM1,000.00	Prorated	RM1,000.00	RM1,000.00
15	Land Acquisition	RM0.00	Prorated	RM0.00	RM0.00
16	Services Relocation	RM0.00	Prorated	RM0.00	RM0.00
17	**Blok A**	**RM0.00**	**Prorated**	**RM1,050,000.00**	**RM1,050,000.00**
18	Kerja Tanah	RM200,000.00	Prorated	RM200,000.00	RM200,000.00
19	Kerja Struktur	RM400,000.00	Prorated	RM400,000.00	RM400,000.00
20	Kerja Arkitek	RM250,000.00	Prorated	RM250,000.00	RM250,000.00
21	Kerja M&E	RM200,000.00	Prorated	RM200,000.00	RM200,000.00
22	**Blok B**	**RM0.00**	**Prorated**	**RM900,000.00**	**RM900,000.00**
23	Kerja Tanah	RM180,000.00	Prorated	RM180,000.00	RM180,000.00
24	Kerja Struktur	RM290,000.00	Prorated	RM290,000.00	RM290,000.00
25	Kerja Arkitek	RM200,000.00	Prorated	RM200,000.00	RM200,000.00
26	Kerja M&E	RM230,000.00	Prorated	RM230,000.00	RM230,000.00
27	Completion of Cable Laying by TNB	RM0.00	Prorated	RM0.00	RM0.00
28	T&C	RM0.00	Prorated	RM0.00	RM0.00
29	Projek Siap	RM0.00	Prorated	RM0.00	RM0.00



Fixed Cost Accrual (Kaedah Pembayaran)

START

- **bayaran 100% dibuat bila kerja bermula**
- Contoh : special item /special contract

PRORATED

- **bayaran yang dibuat mengikut kemajuan kerja**
- Contoh : kerja-kerja fizikal

END

- **bayaran 100% dibuat hanya setelah siap kerja**
- Contoh : kerja-kerja fizikal yang menggunakan kaedah earned value

Performance Bond	RM10,000.00	Prorated	RM
Est & remove S.O.	RM0.00	Prorated	RM
Establish S.O	RM15,000.00	Prorated	RM
Removal S.O	RM5,000.00		RM
Maintain S.O.	RM15,000.00		RM
Progress Report	RM0.00	Prorated	RM
Progress Report 1	RM1,000.00	Prorated	RM

Start
Prorated
End

Penyediaan S-Curve

Kegunaan S-Curve

Dari Perspektif Pelanggan

- **Progress/ Kemajuan Kerja**
- **Bayaran**
- **Untuk menyediakan peruntukan**

Dari Perspektif Kontraktor

- **Anggaran Bajet / Sumber 4M**
- **Aliran Tunai**
- **Pelaksanaan**
- **Progress/ Kemajuan Kerja**
- **Tuntutan/ Bayaran**
- **Sebagai asas/bukti untuk menyokong tuntutan bayaran dan permohonan lanjutan masa.**

Memahami S-Curve

- **Financial S-Curve is based on cost.**
  - **Works Cost (RM) vs Project Duration (Months).**
- **Physical S-curve is based on duration.**
  - **Works Duration (days) vs Project Duration (Months)**

Question 1

A 100mil project shows the **actual physical progress of 50%** and Client just **paid the Contractor 32mil**.

Why?
Why different?
Not fair…
Mostly…. Current practice

Question 2

A project shows the <u>variances</u> for <u>financial progress, physical progress and project finish date were -10%, -15% and +20days respectively</u>.

Please explain.

MICROSOFT PROJECT

HANDS ON

10

Penyediaan S-Curve Kewangan

Untuk menyediakan **S-CURVE Kewangan** menggunakan MS Project 2010

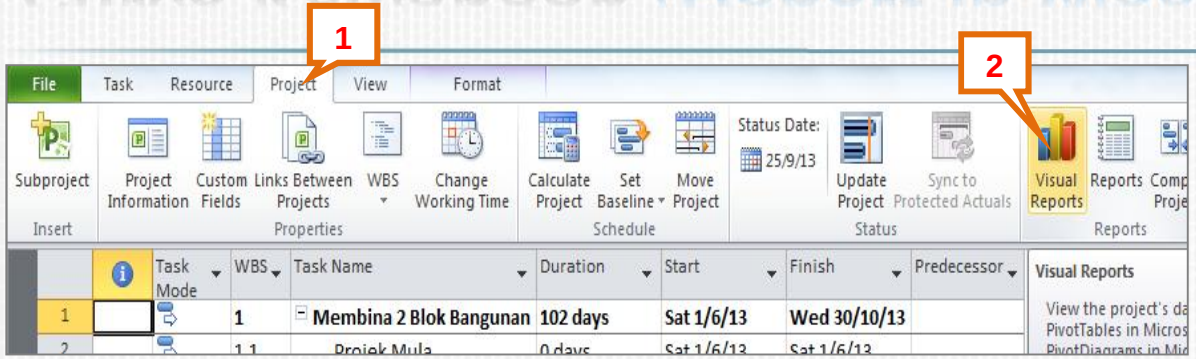
- ✓ **Method 1** – **using Visual Reports.**
- ✓ **Method 2** – **using Task Usage View.**

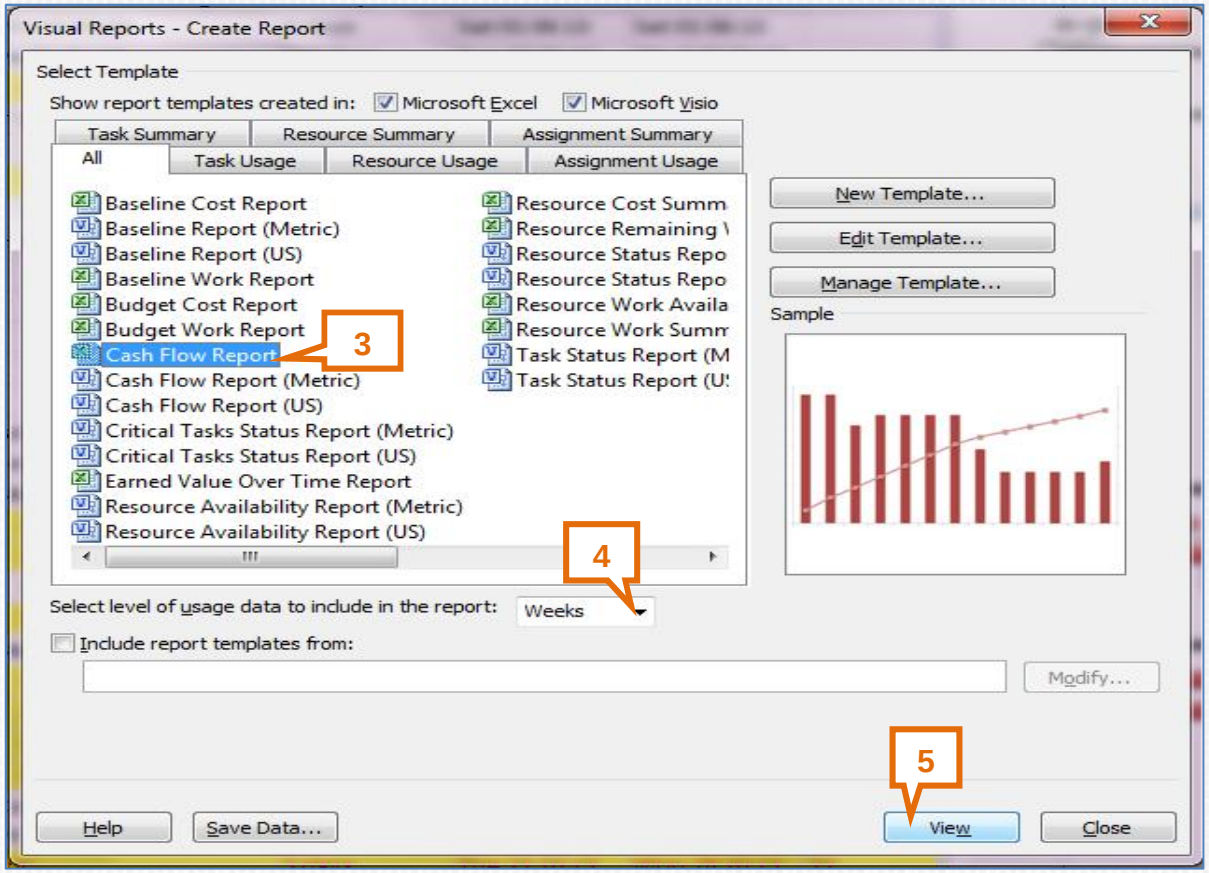
Penyediaan S-Curve Kewangan

(Method 1)

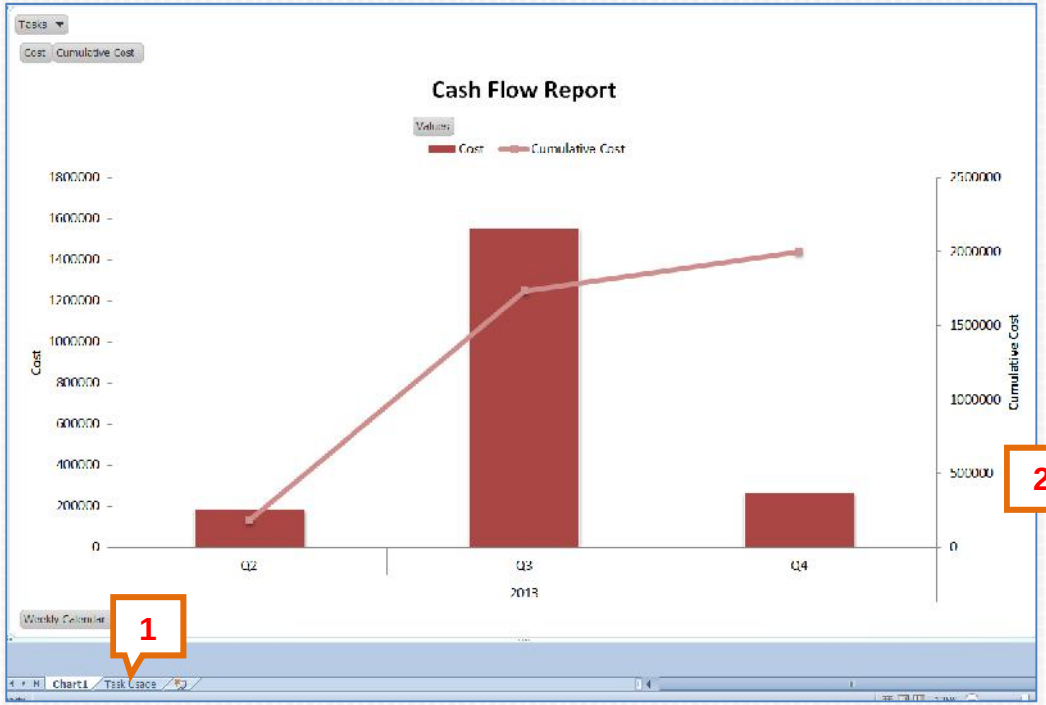
- **Menggunakan Visual Report**

S-Curve Kewangan (Report in Week)





S-Curve Kewangan (Report in Week)



1

2

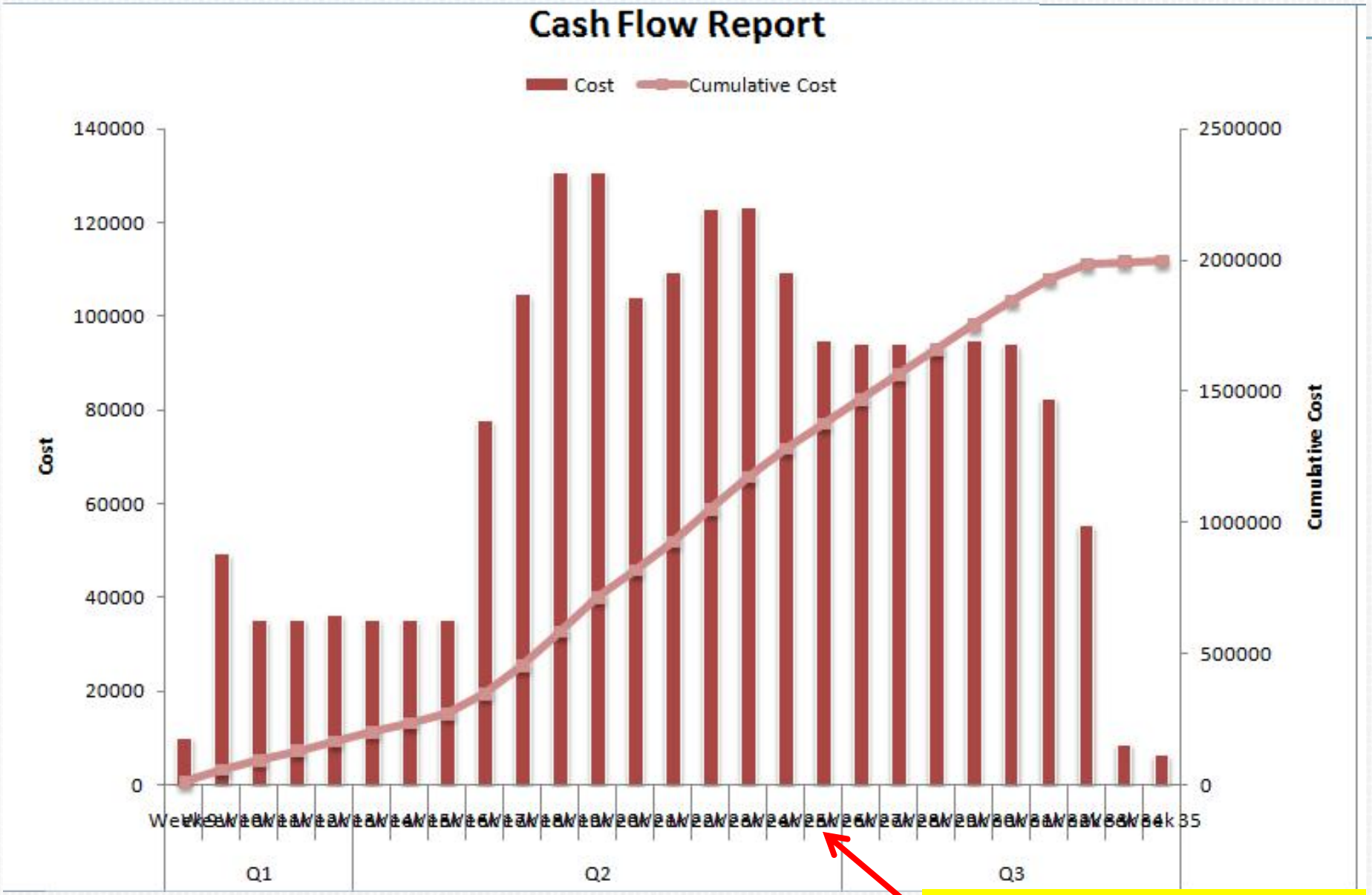
	Year	Quarter	Week	Cost	Cumulative Cost
5	⊟2013	⊟Q2	Week 22	0	0
6			Week 23	7999.999821	7999.999821
7			Week 24	46632.52896	54632.52349
8			Week 25	44449.98901	99082.51904
9			Week 26	42614.82905	141697.3498
10			Week 27	41614.82907	183312.1806
11		Q2 Total		183312.1759	183312.1806
12		⊟Q3	Week 28	33291.86926	216604.0452
13			Week 29	53736.0388	270340.0878
14			Week 30	103220.8877	373560.9778
15			Week 31	140887.5569	514448.5337
16			Week 32	120443.3873	634891.9115
17			Week 33	101395.7677	736287.6707
18			Week 34	132550.647	868846.3231
19			Week 35	162178.1164	1031024.435
20			Week 36	197646.5056	1228670.941
21			Week 37	154471.1865	1383142.123
22			Week 38	100376.9378	1483519.07
23			Week 39	126471.1872	1609990.253
24			Week 40	125471.1872	1735461.436
25		Q3 Total		1552149.275	1735461.436
26		⊟Q4	Week 41	125471.1872	1860932.619
27			Week 42	60818.42864	1921751.043
28			Week 43	54149.75879	1975900.799
29			Week 44	24099.15946	1999999.955
30		Q4 Total		264538.5341	1999999.955
31	2013 Total			1999999.985	1999999.955
32	Grand Total			1999999.985	1999999.955

3

Chart1 | Task Usage

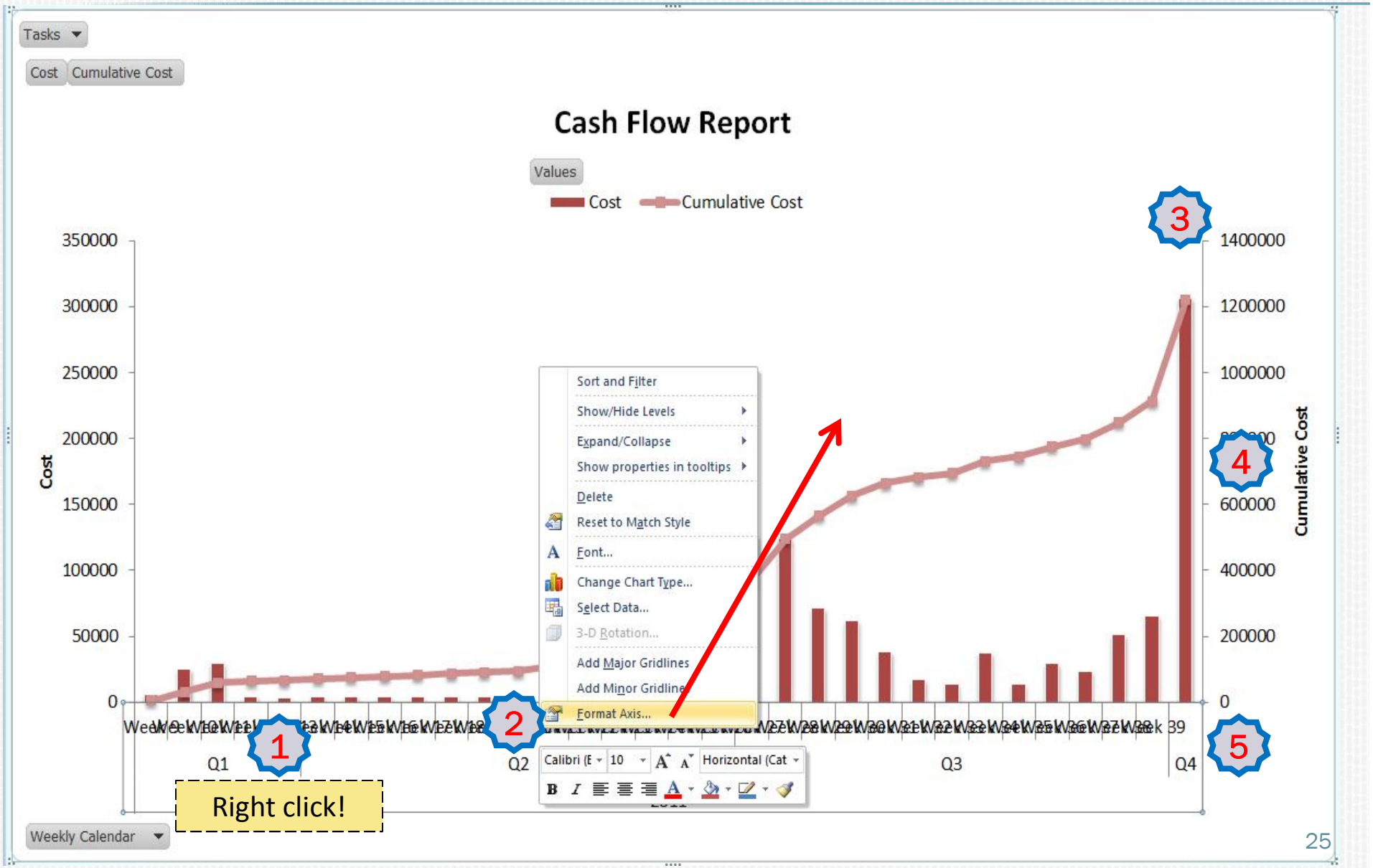
Ms Project will export the financial data into Ms Excel format

S-Curve Kewangan (Report in Week)



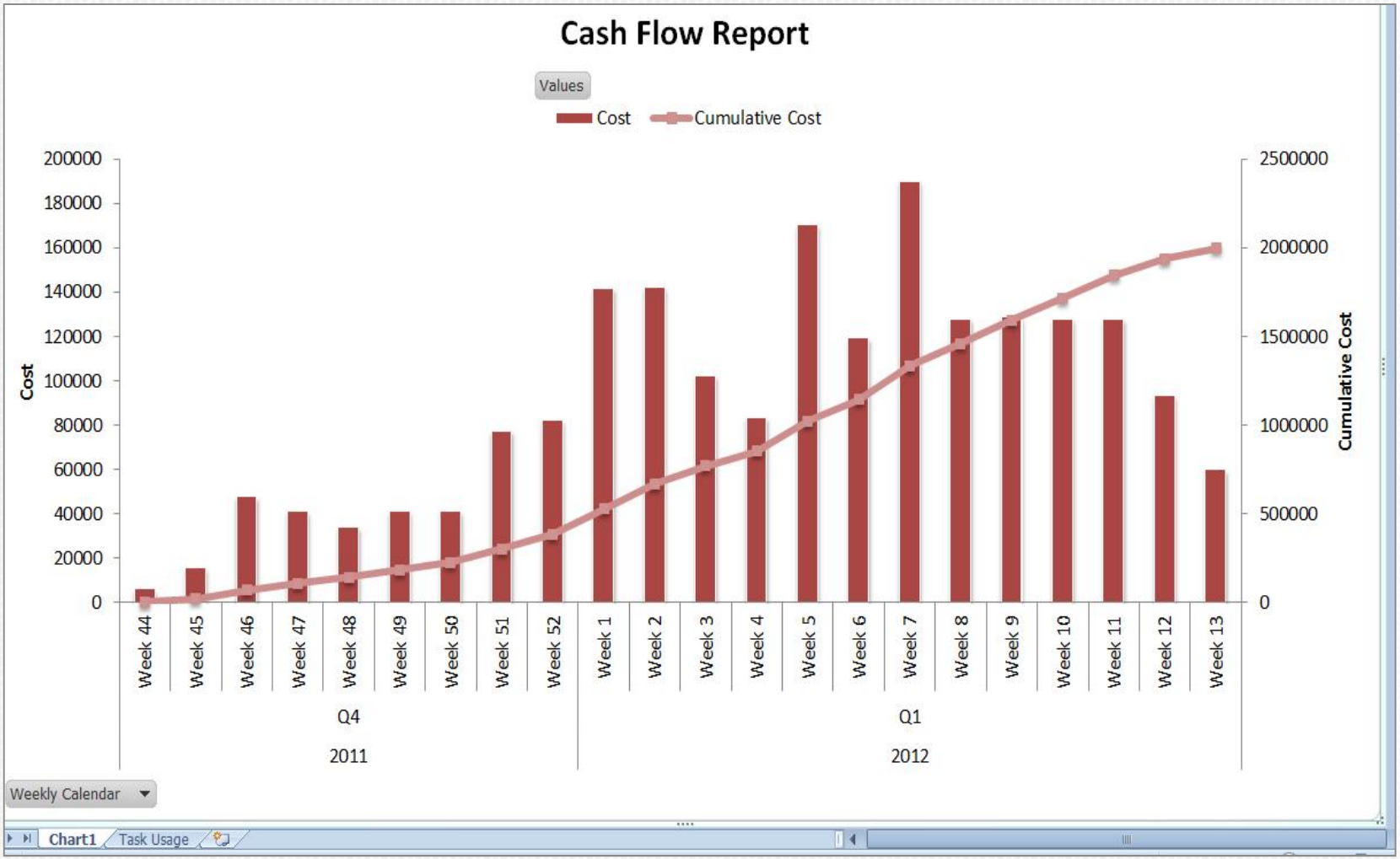
Words alignment needs change

To change alignment of X-Axis title description (weeks)

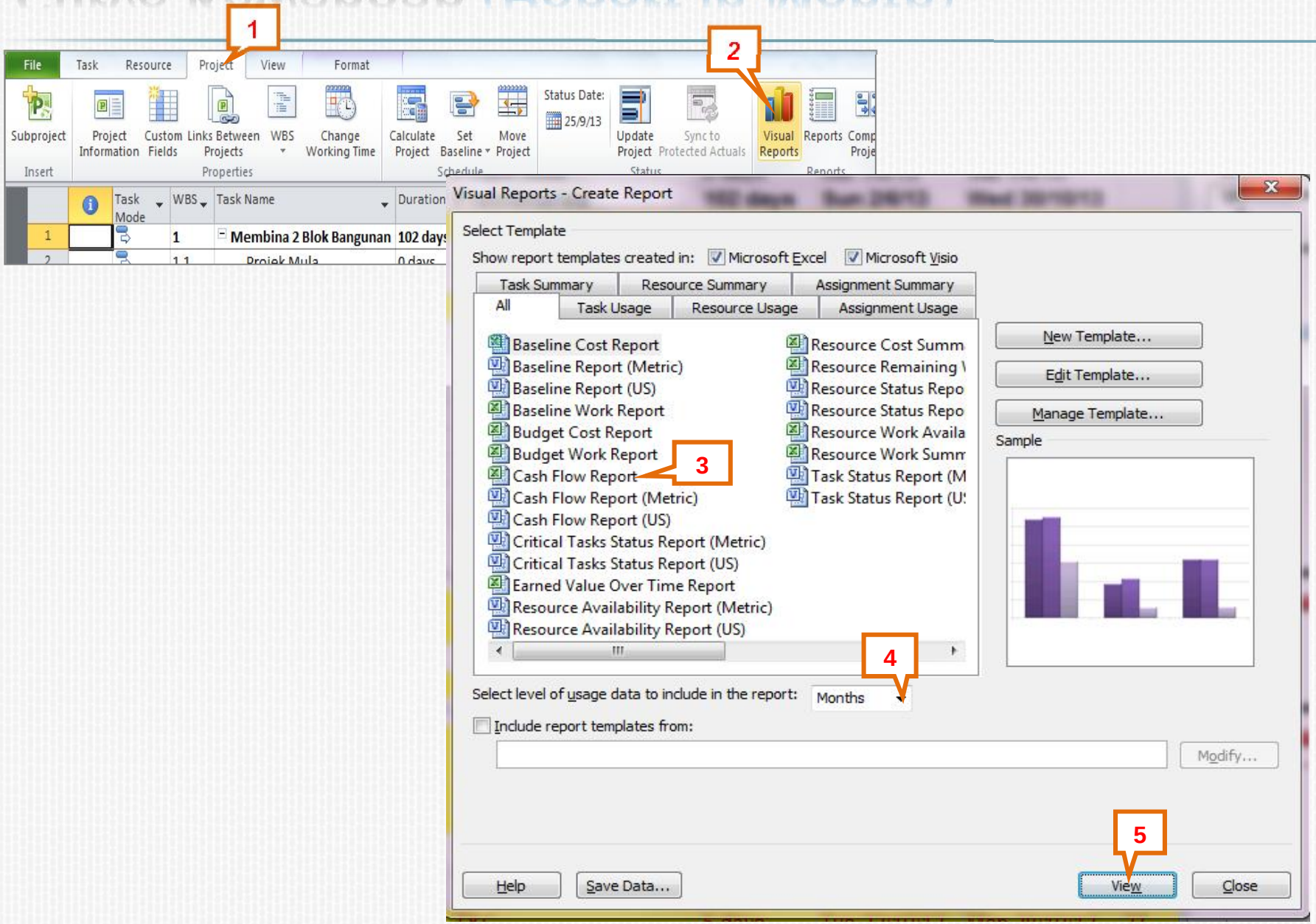


S-Curve Kewangan (Report in Week)

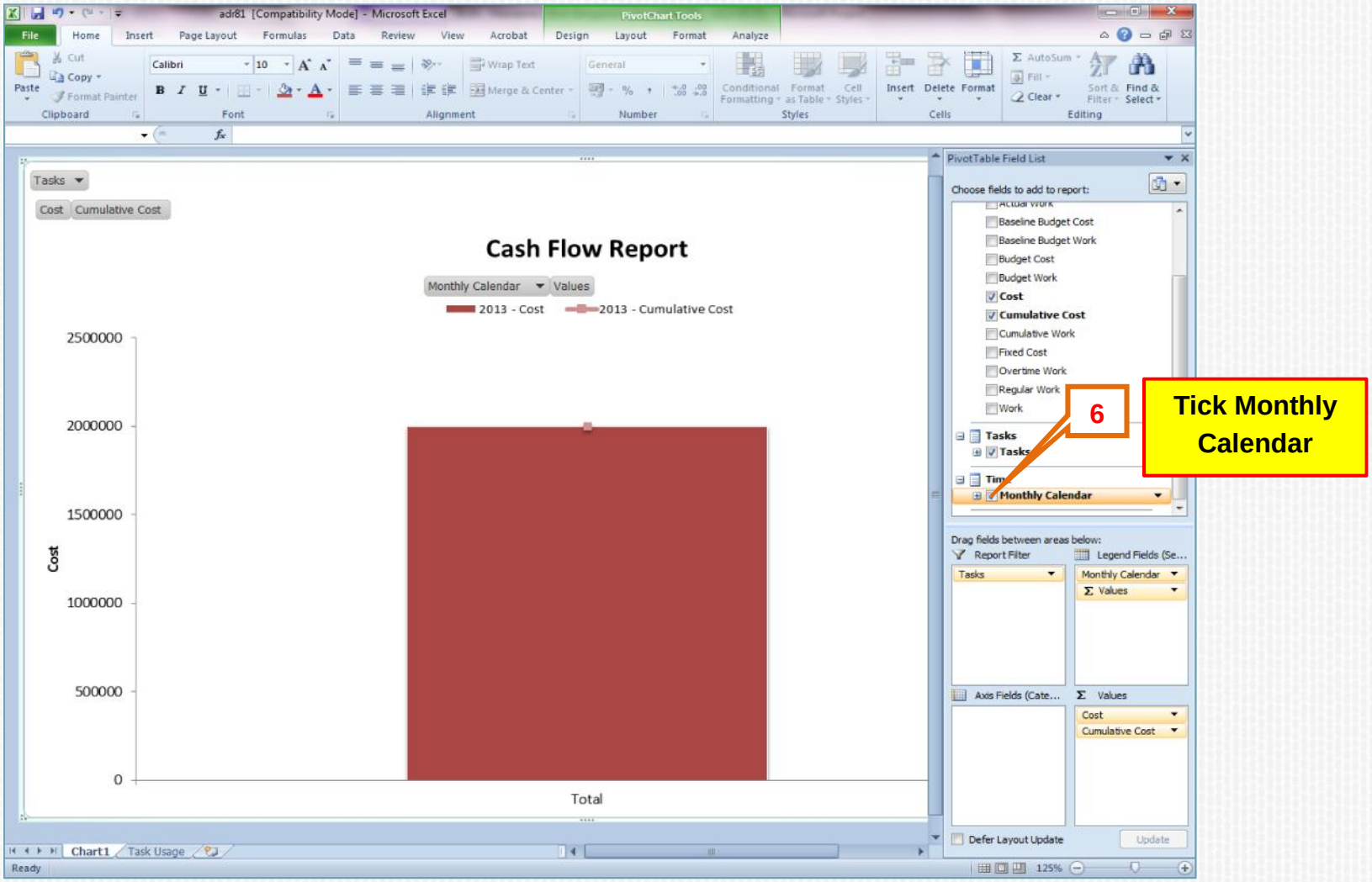
Financial S-Curve in Week



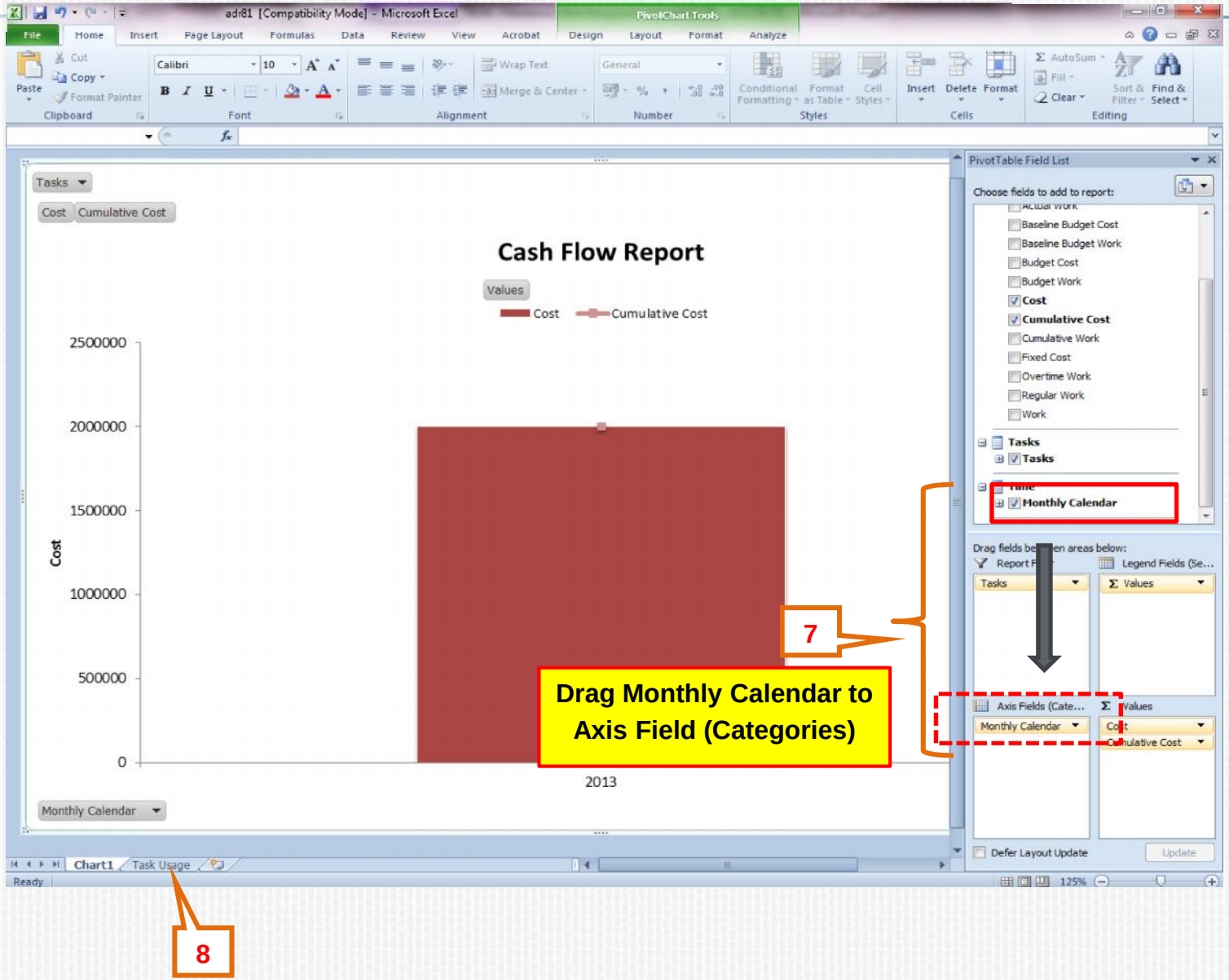
S-Curve Kewangan (Report in Month)



S-Curve Kewangan (Report in Month)



S-Curve Kewangan (Report in Month)



S-Curve Kewangan (Report in Month)

	A	B	C	D	E
1	Tasks	All			
2					
3		Data			
4	Year	Cost	Cumulative Cost		
5	2013	2000000	2000000		
6	Grand Total	2000000	2000000		

9

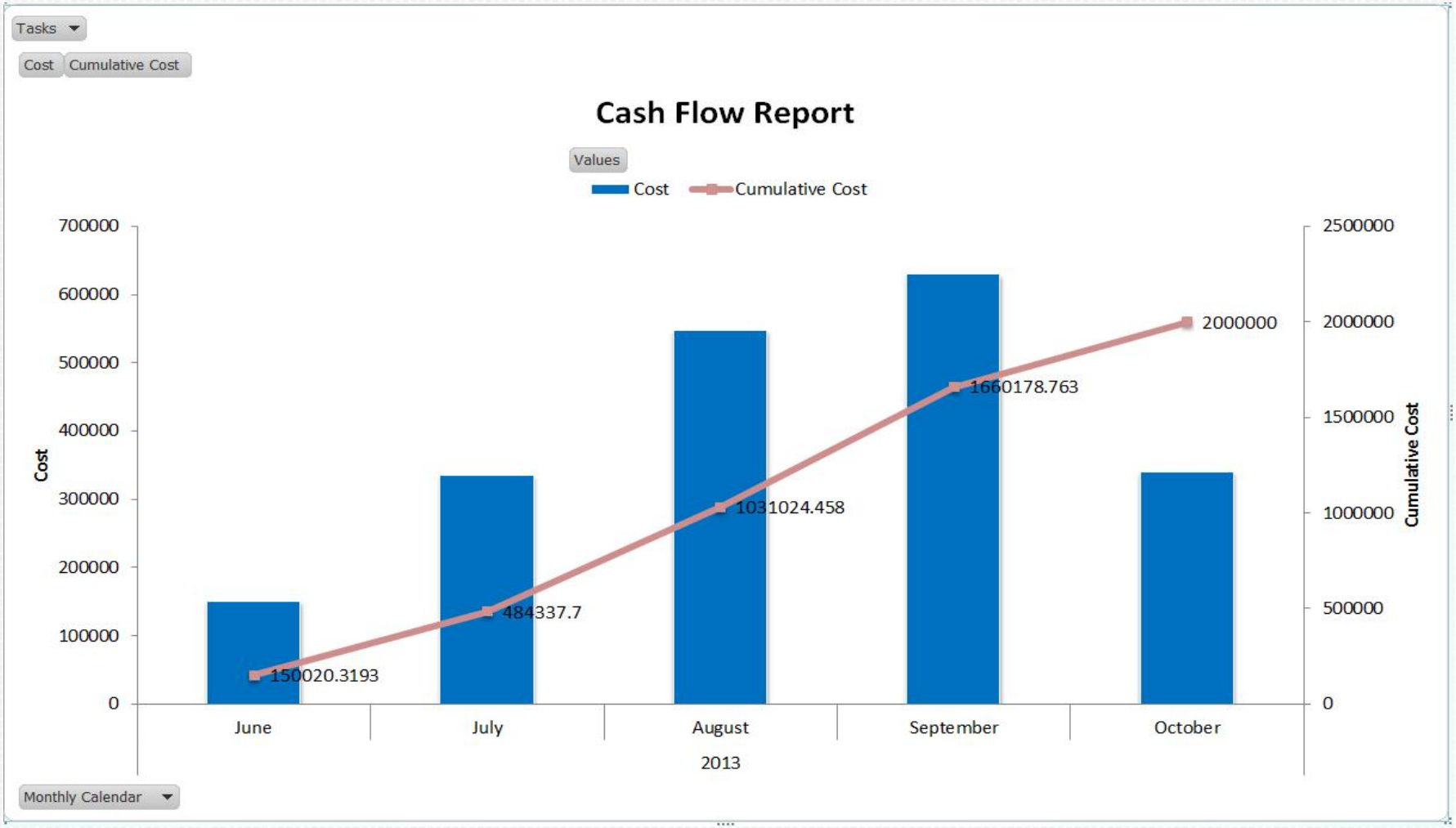
Untick

	A	B	C	D
1	Tasks	All		
2				
3			Data	
4	Year	Month	Cost	Cumulative Cost
5	2013	June	150020.32	150020.3193
6		July	334317.37	484337.7
7		August	546686.76	1031024.458
8		September	629154.3	1660178.763
9		October	339821.25	2000000
10	2013 Total		2000000	2000000
11	Grand Total		2000000	2000000

10

S-Curve Kewangan (Report in Month)

Financial S-Curve in Month

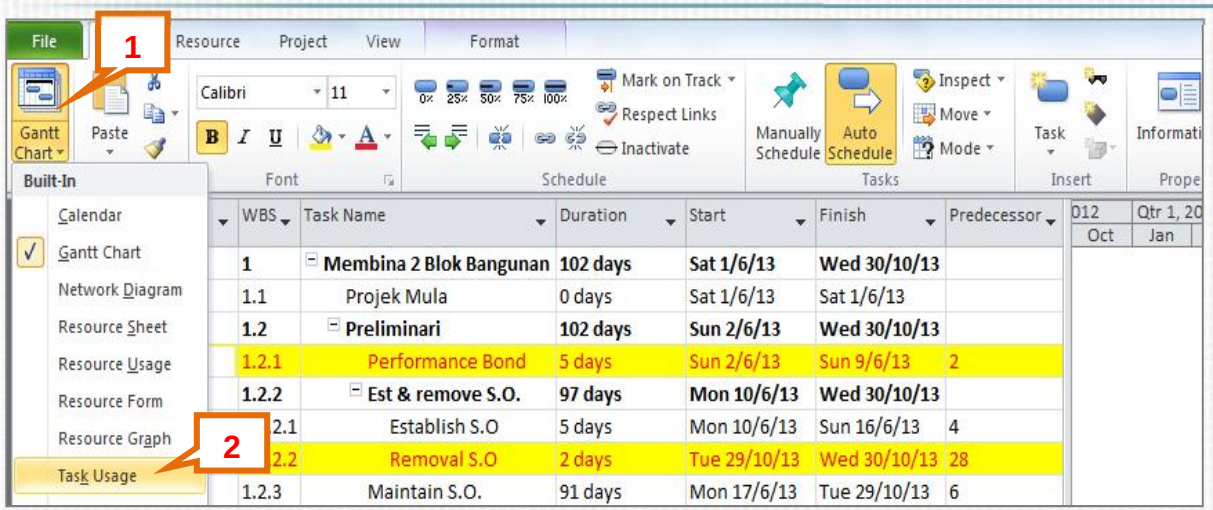


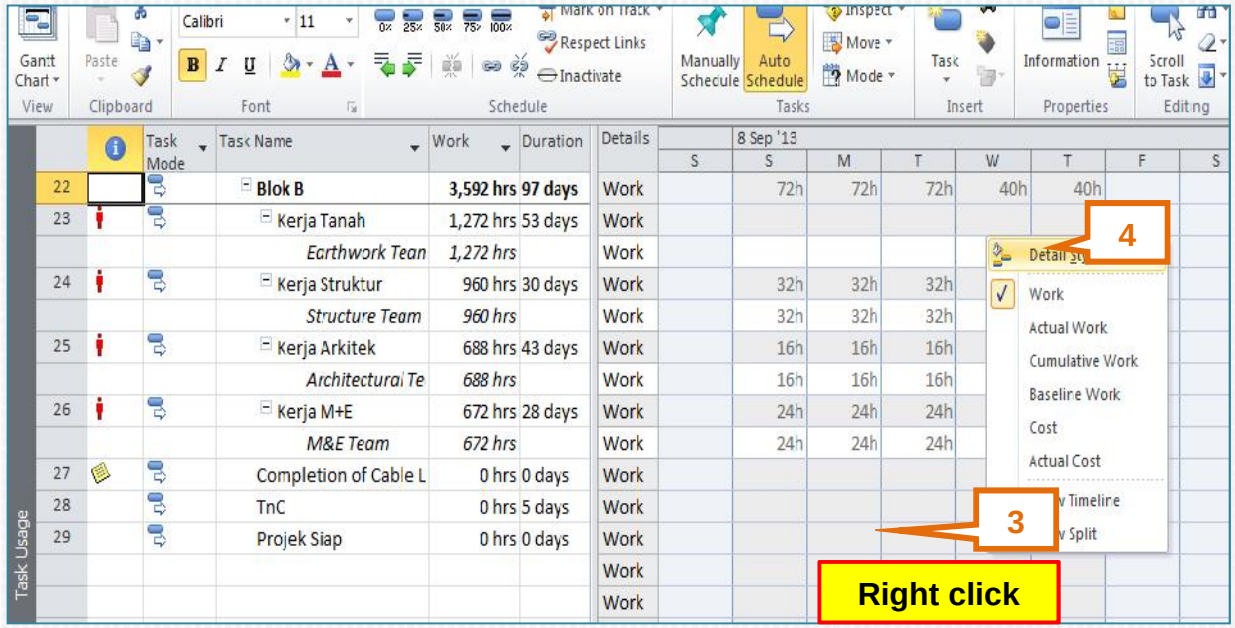
Penyediaan S-Curve Kewangan

(Method 2)

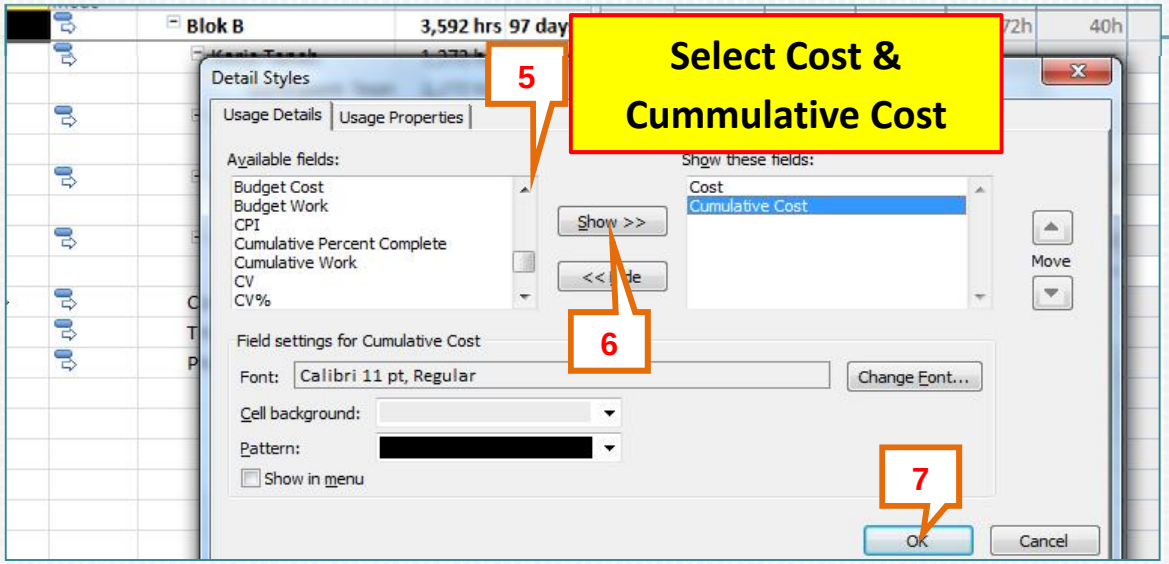
- **Menggunakan Task Usage**

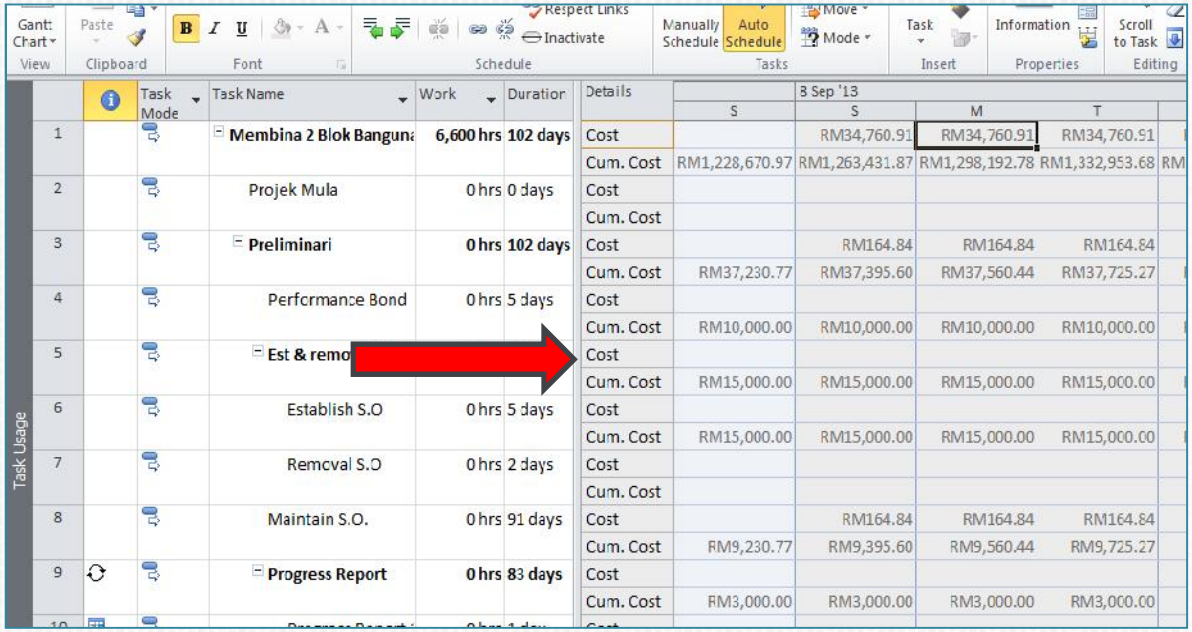
S-Curve Kewangan (Report in Month)



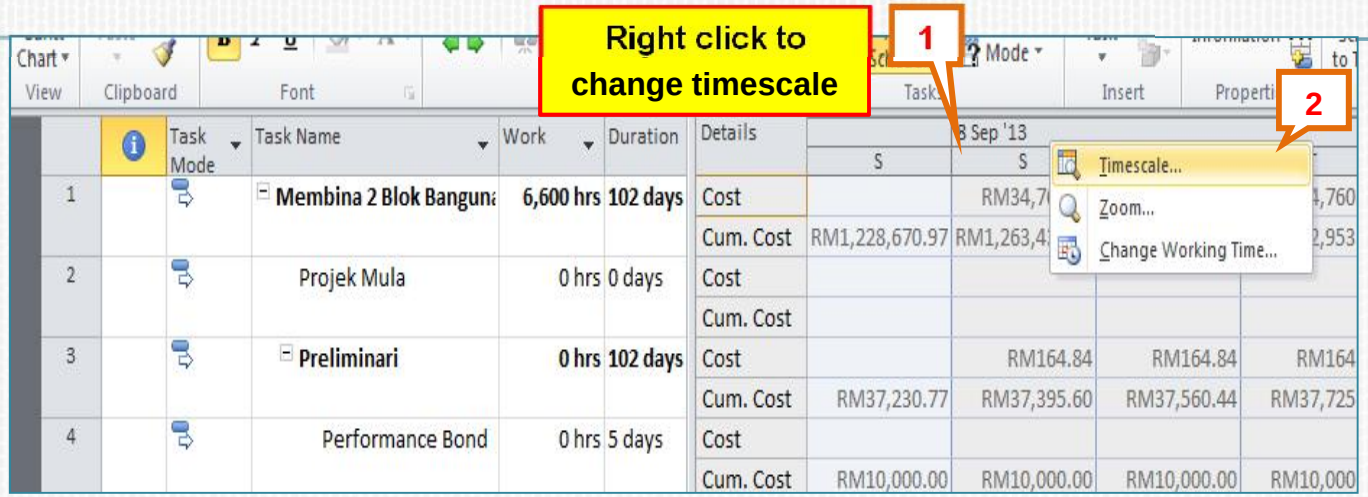


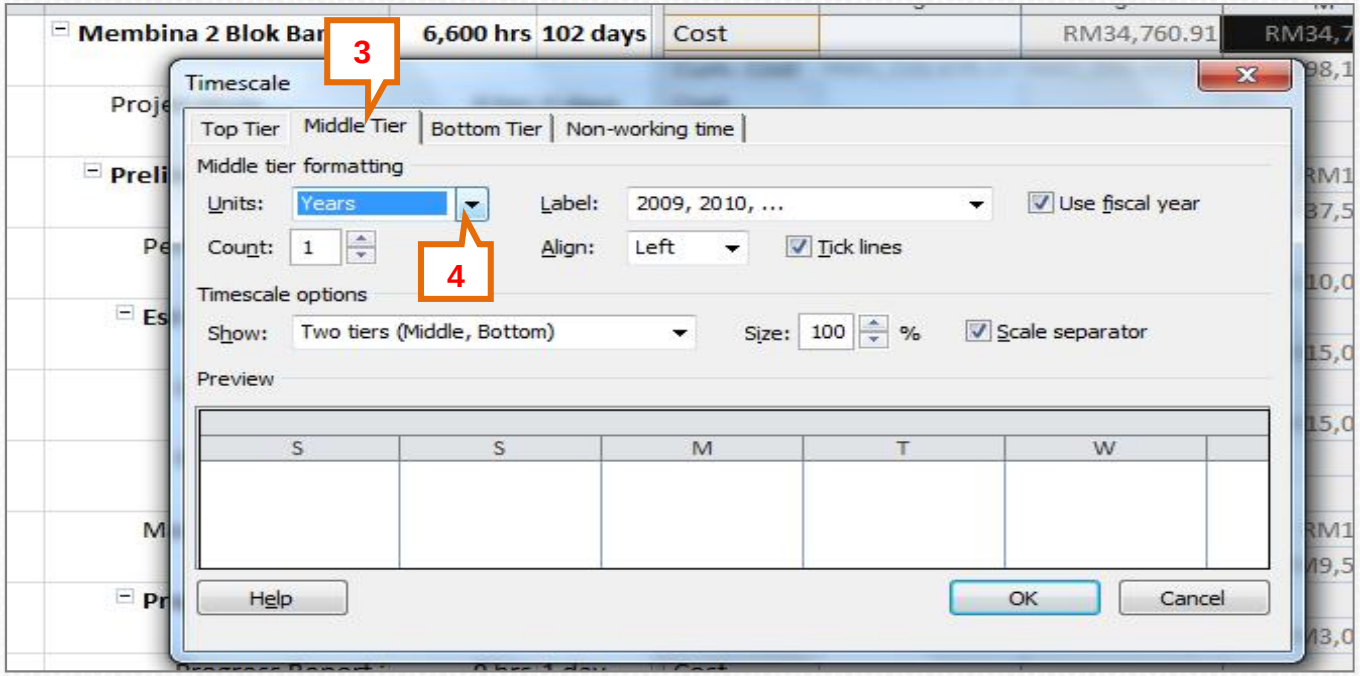
S-Curve Kewangan (Report in Month)



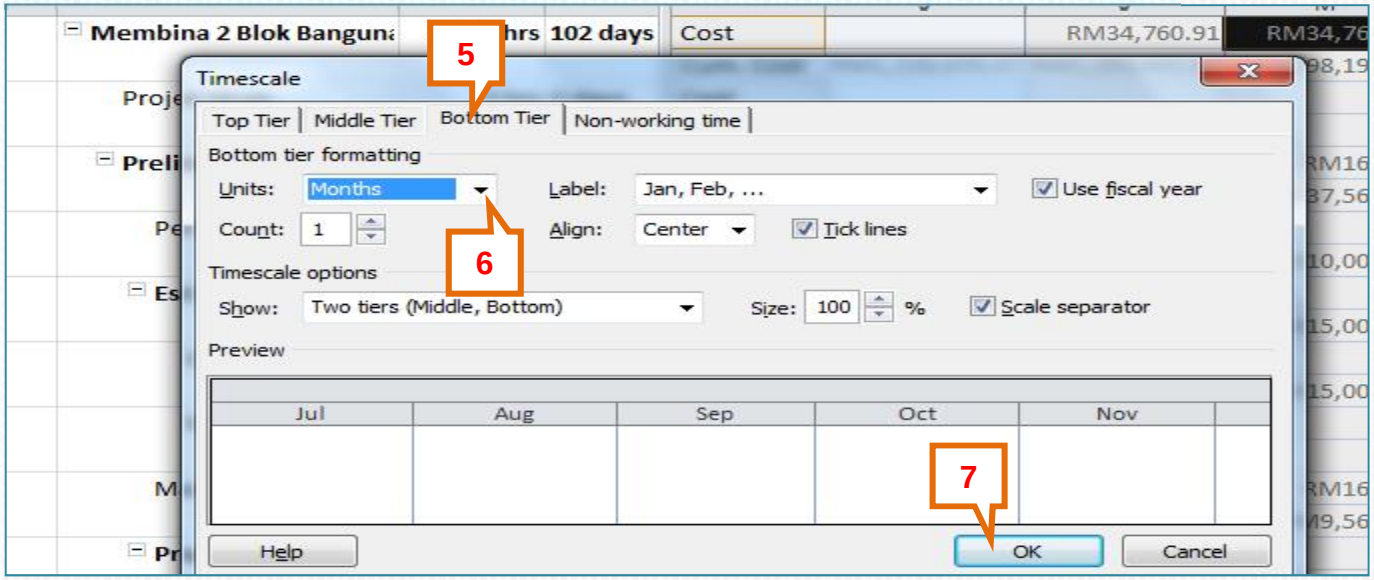


S-Curve Kewangan (Report in Month)



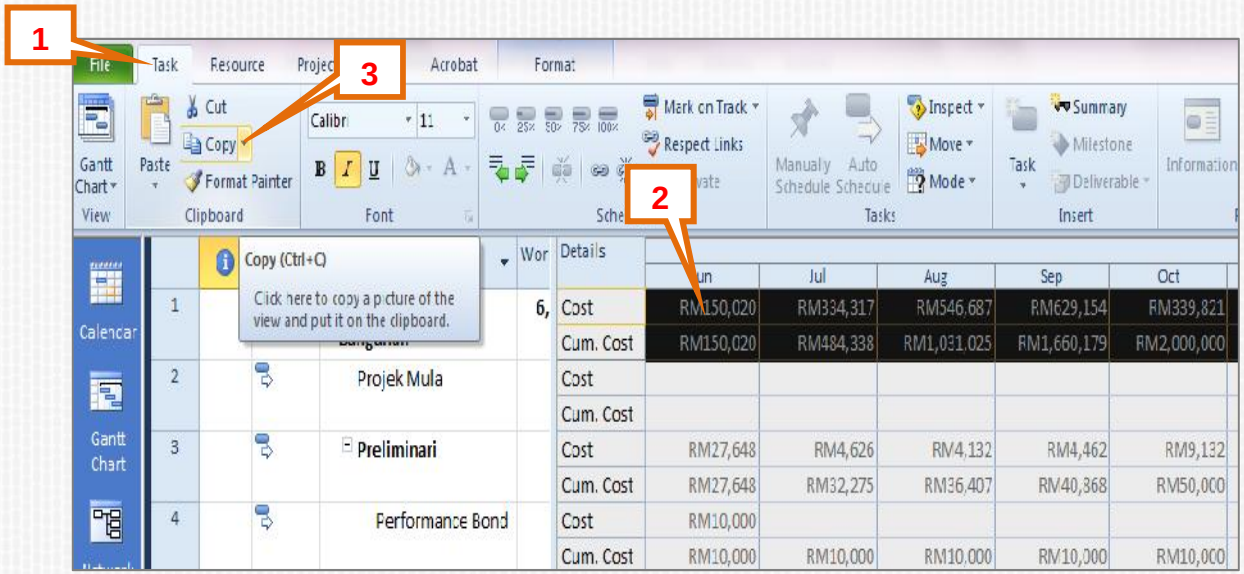


S-Curve Kewangan (Report in Month)

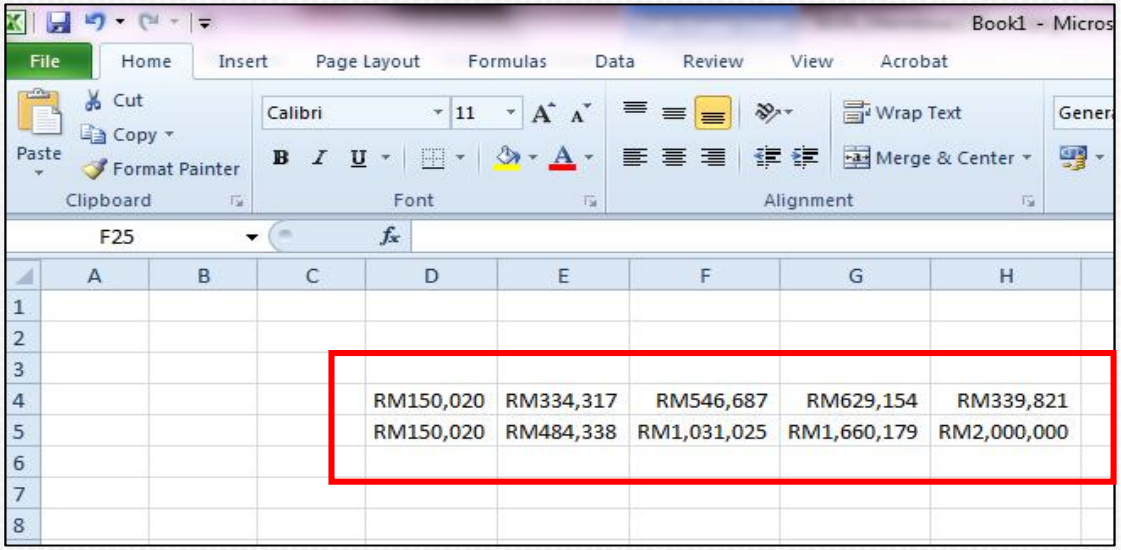


Task Mode	Task Name		Details	Jun	Jul	Aug	Sep	Oct
	Membina 2 Blok Bangun	hrs	Cost	RM150,020.32	RM334,317.37	RM546,686.76	RM629,154.30	RM339,821.25
			Cum. Cost	RM150,020.32	RM484,337.70	RM1,031,024.46	RM1,660,178.76	RM2,000,000.00
	Projek Mula	hrs	Cost					
			Cum. Cost					
	Preliminari	hrs	Cost	RM27,648.35	RM4,626.37	RM4,131.87	RM4,461.54	RM9,131.87
			Cum. Cost	RM27,648.35	RM32,274.73	RM36,406.59	RM40,868.13	RM50,000.00
	Performance Bond	hrs	Cost	RM10,000.00				
			Cum. Cost	RM10,000.00	RM10,000.00	RM10,000.00	RM10,000.00	RM10,000.00
	Est & remove S.O.	hrs	Cost	RM15,000.00				RM5,000.00

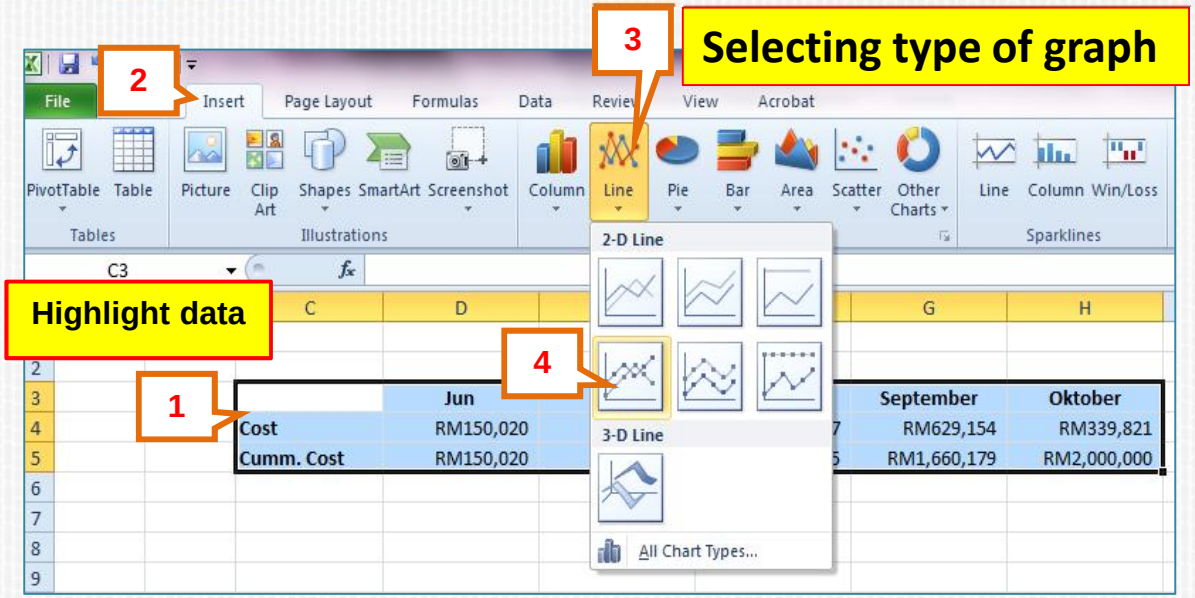
S-Curve Kewangan (Report in Month)



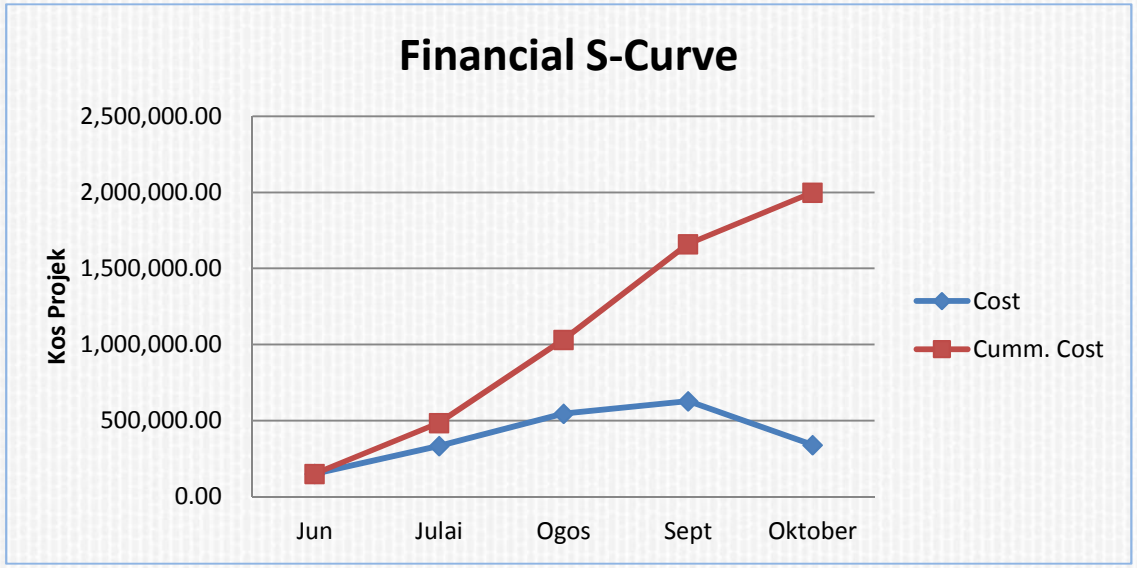
Copy Data From Ms Project to MS Excel



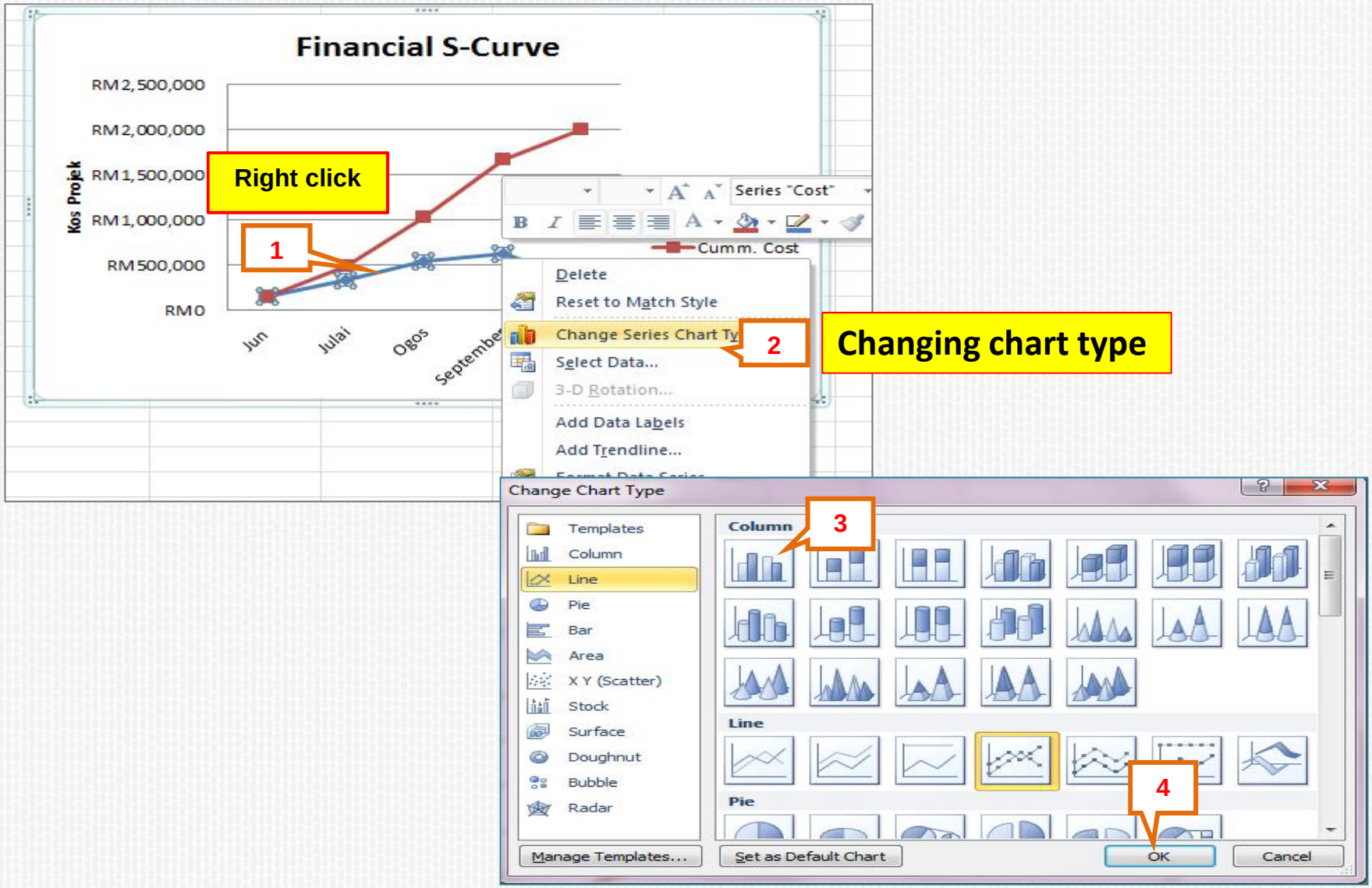
S-Curve Kewangan (Report in Month)



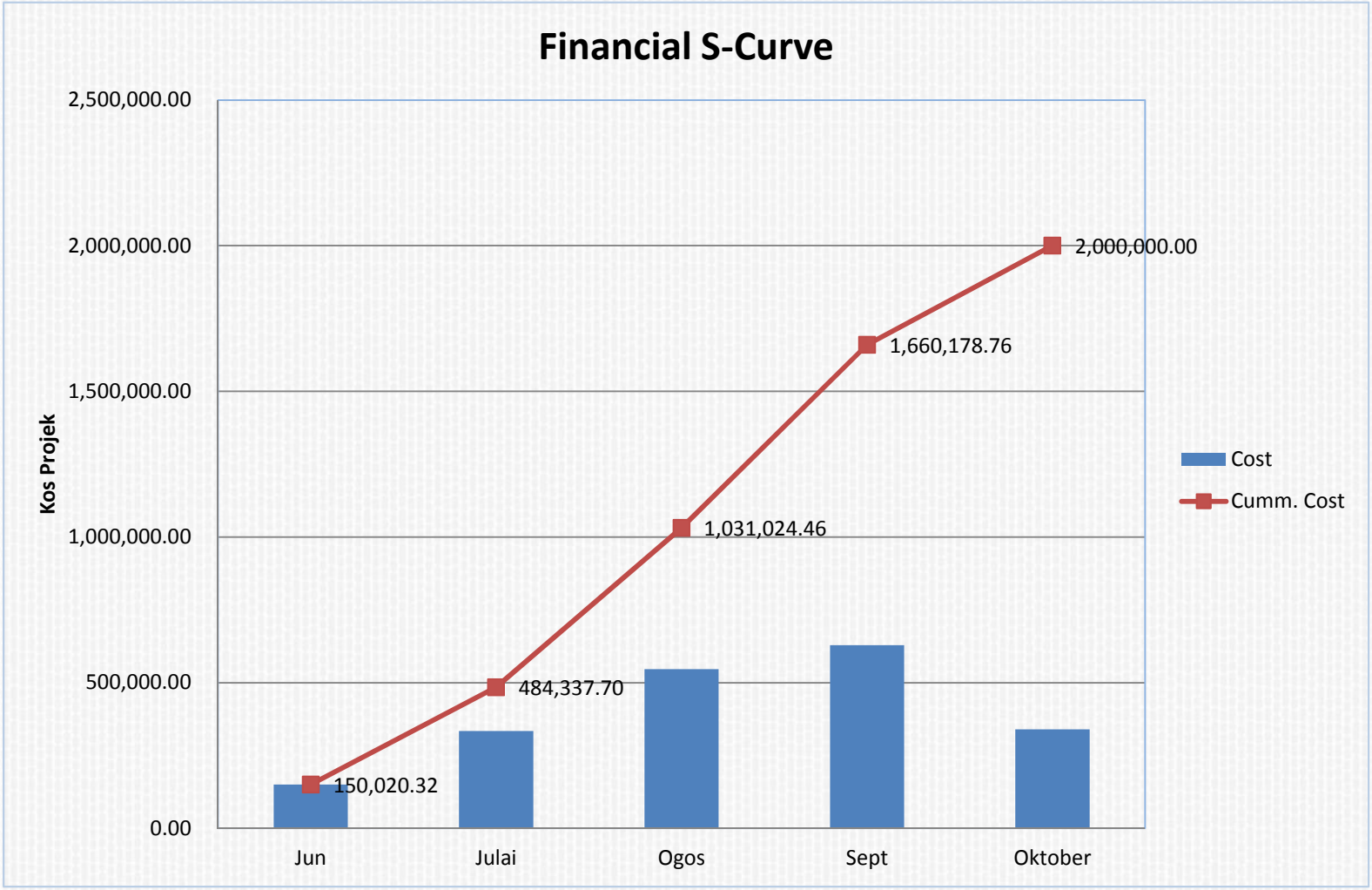
Financial S-Curve



S-Curve Kewangan (Report in Month)



Monthly Financial S-Curve And Cash Flow

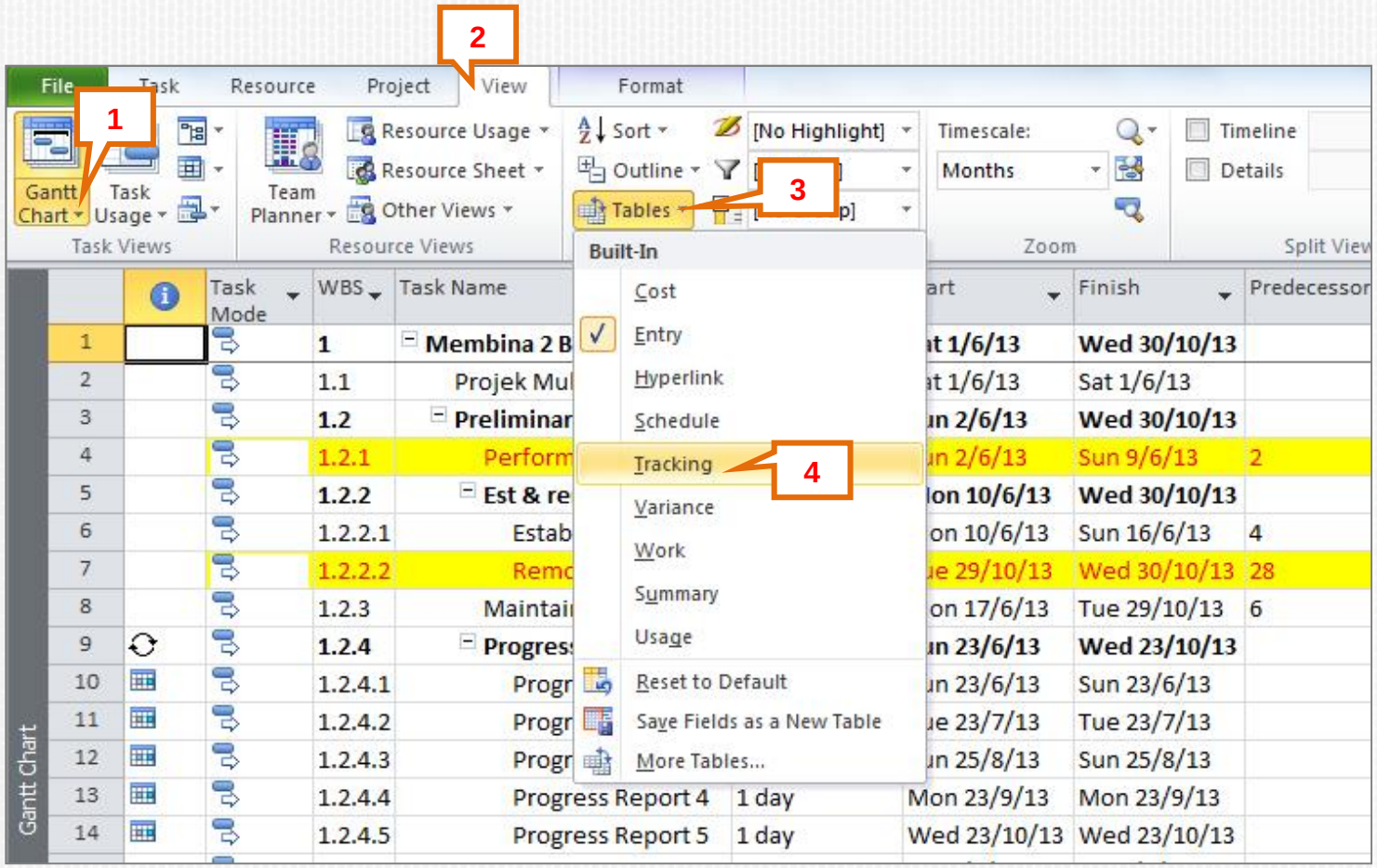


MICROSOFT PROJECT

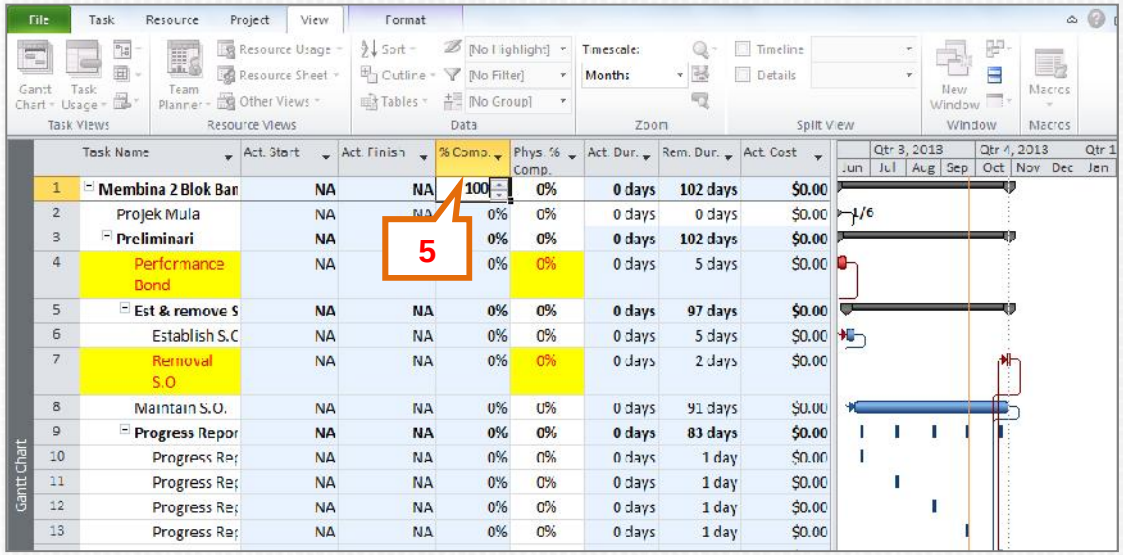
Penyediaan S-Curve Fizikal

- Menggunakan Task Usage

S-Curve Fizikal (Report in Month)

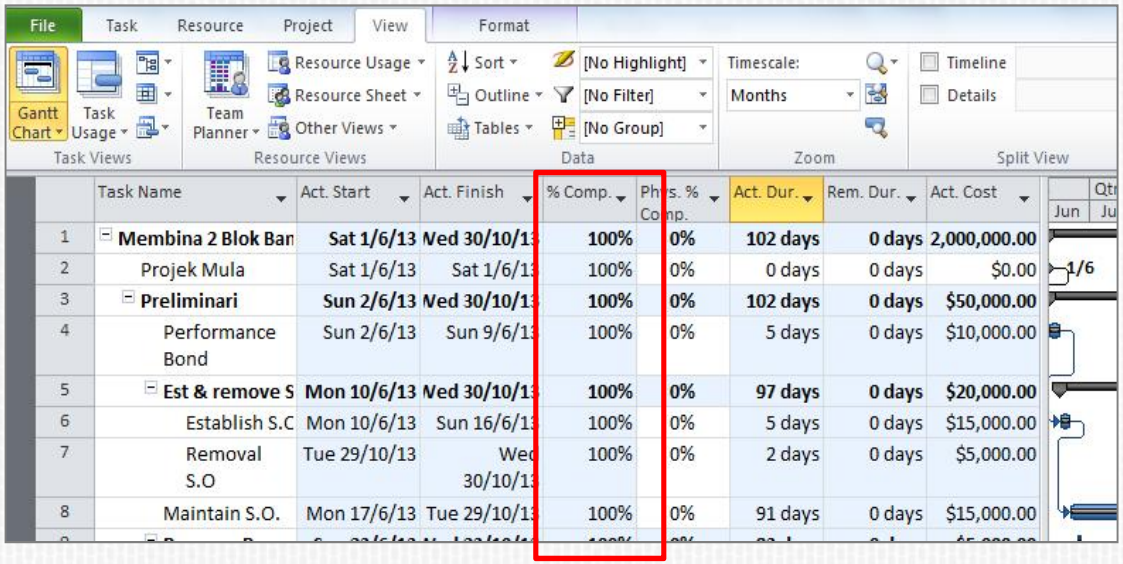


S-Curve Fizikal (Report in Month)

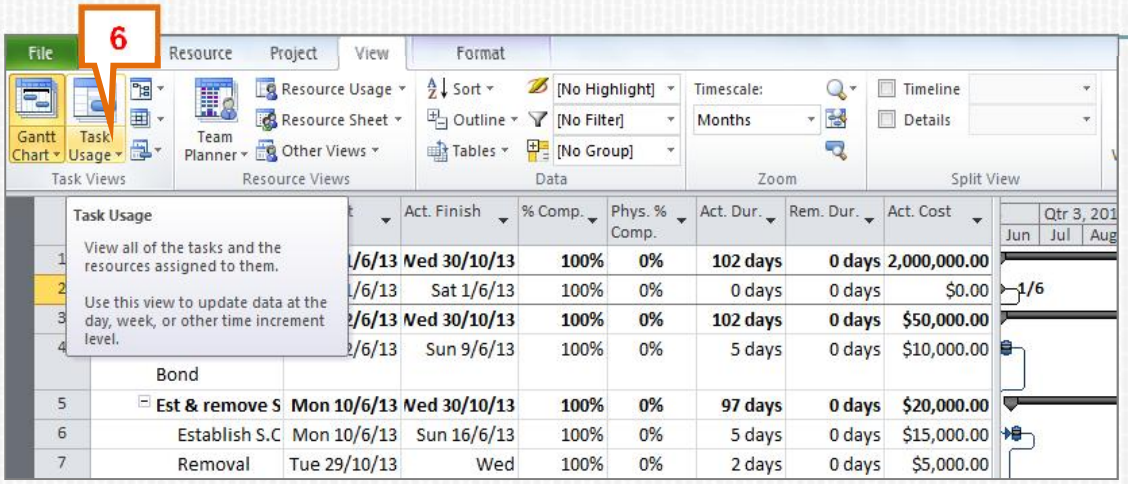


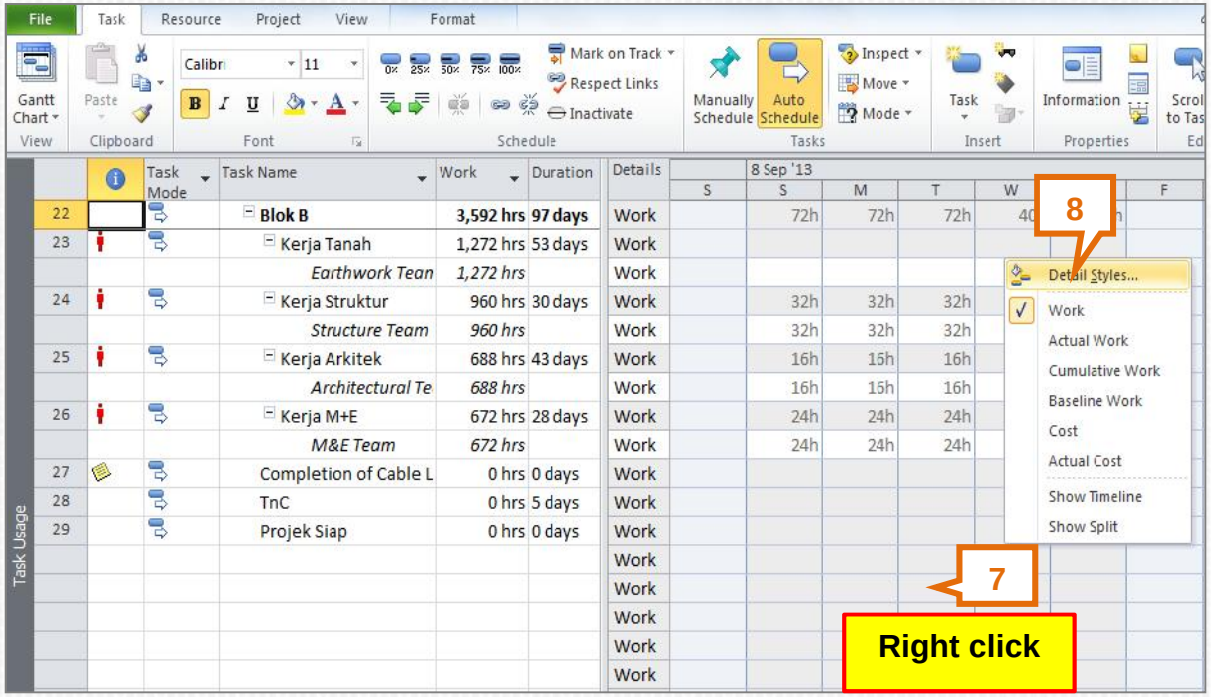
Key In 100% in % Comp Column

Table Tracking With 100% complete

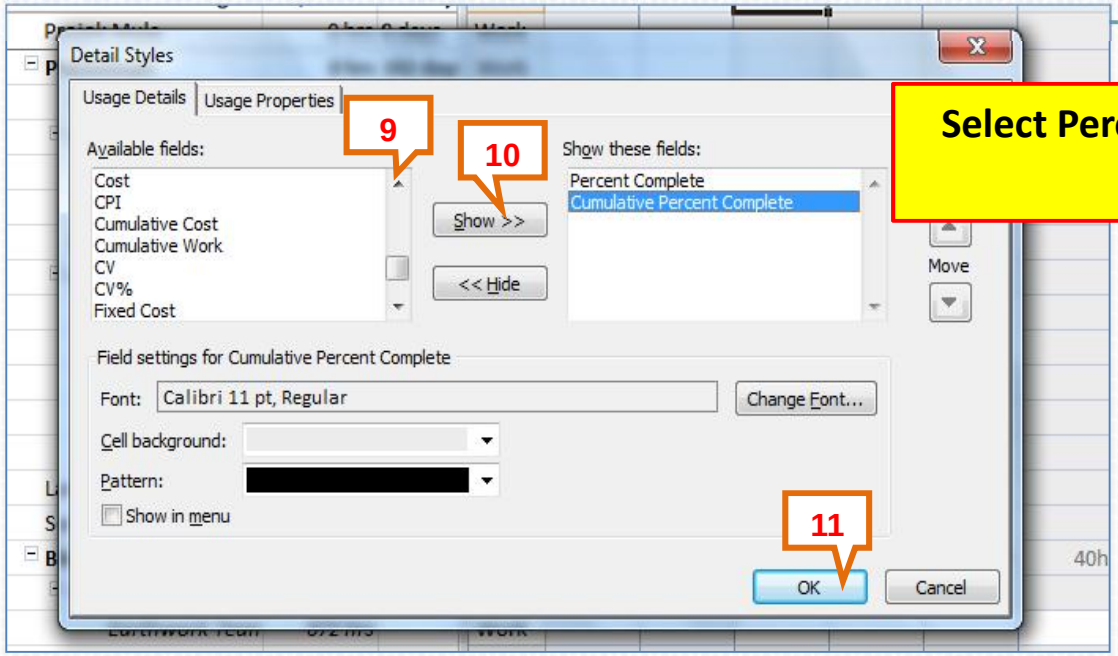


S-Curve Fizikal (Report in Month)

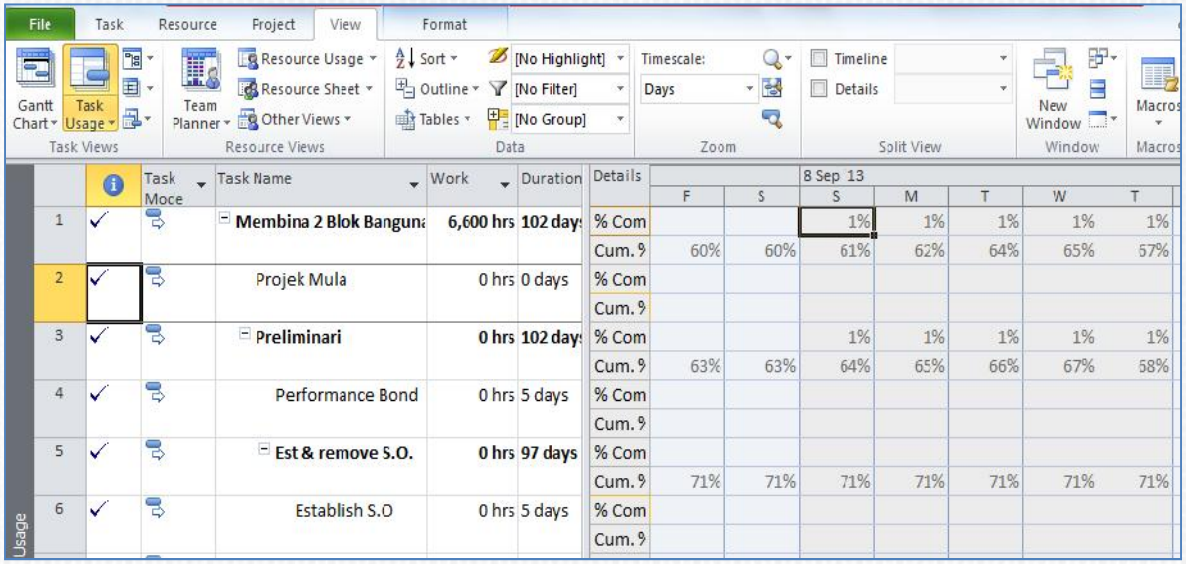




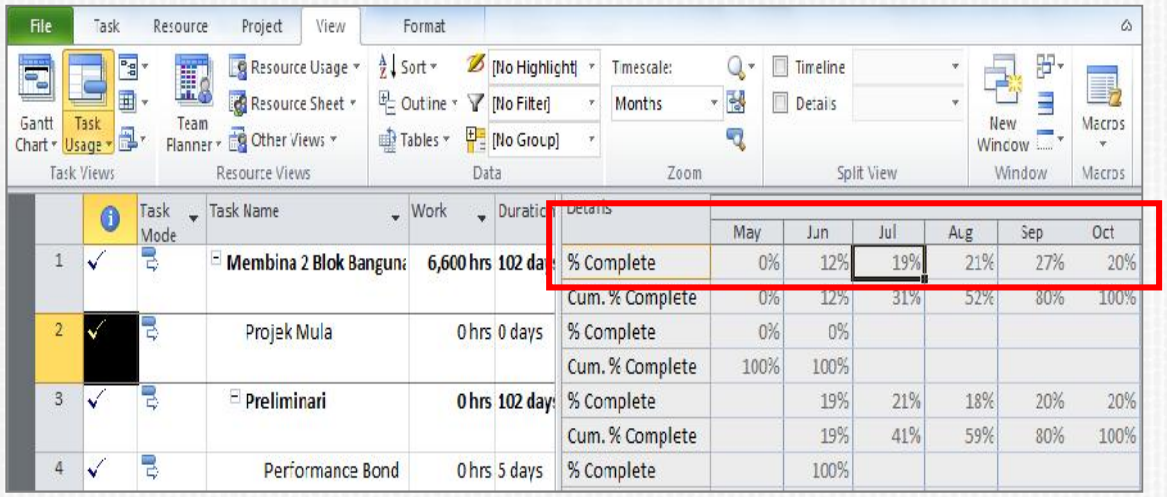
S-Curve Fizikal (Report in Month)



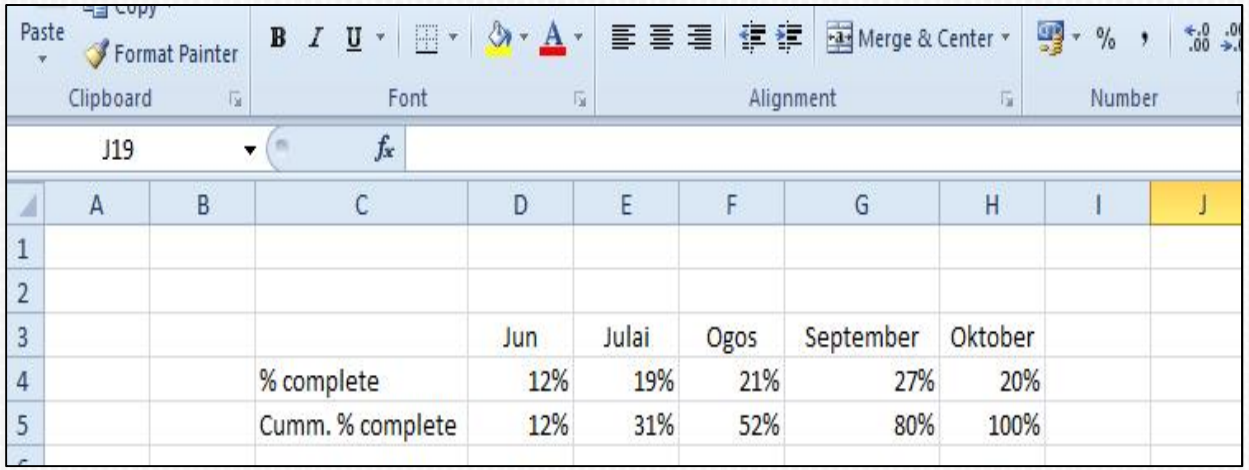
Select Percent Complete & Cumulative Percent Complete



S-Curve Fizikal (Report in Month)

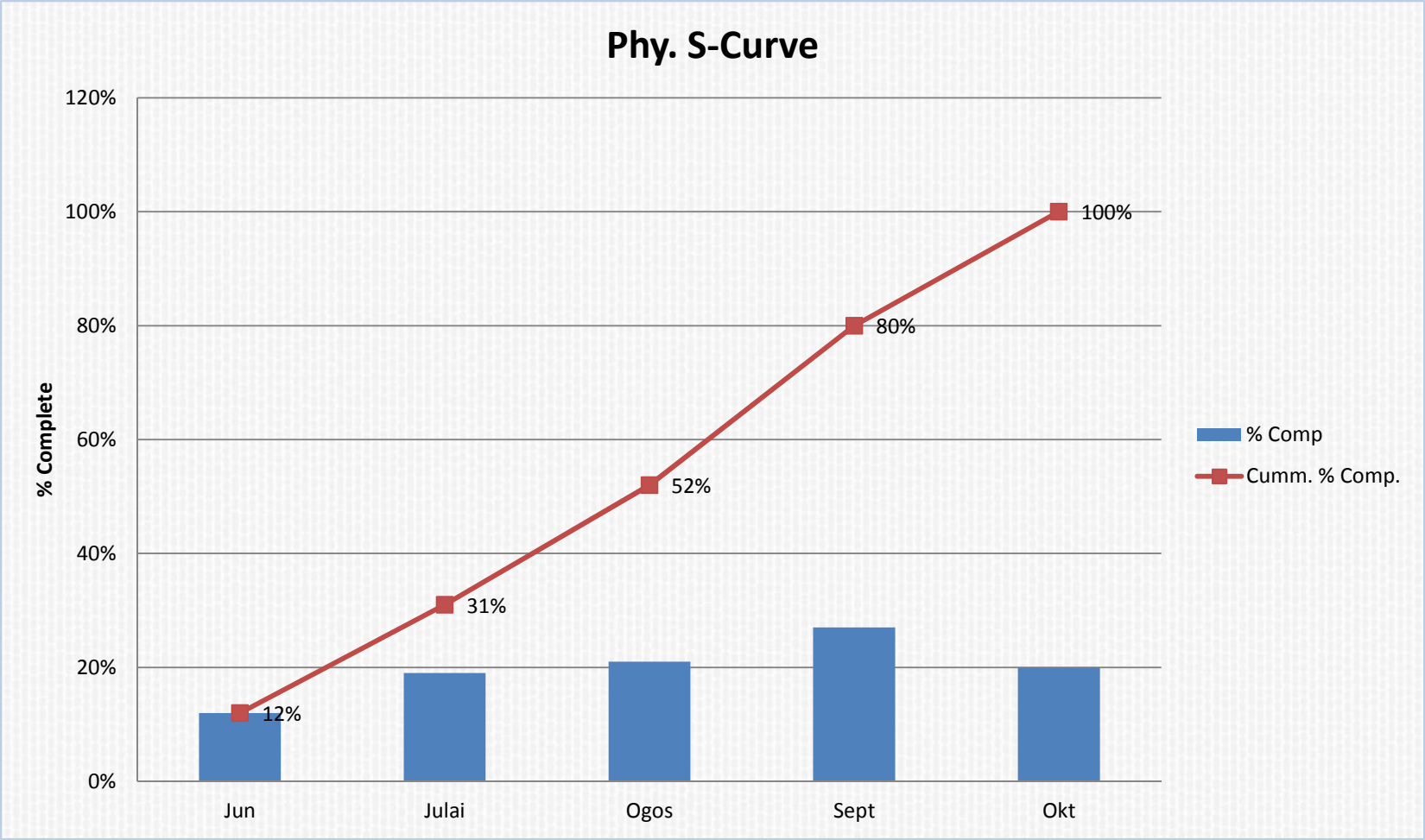


Copy data from Ms Project to Ms Excel



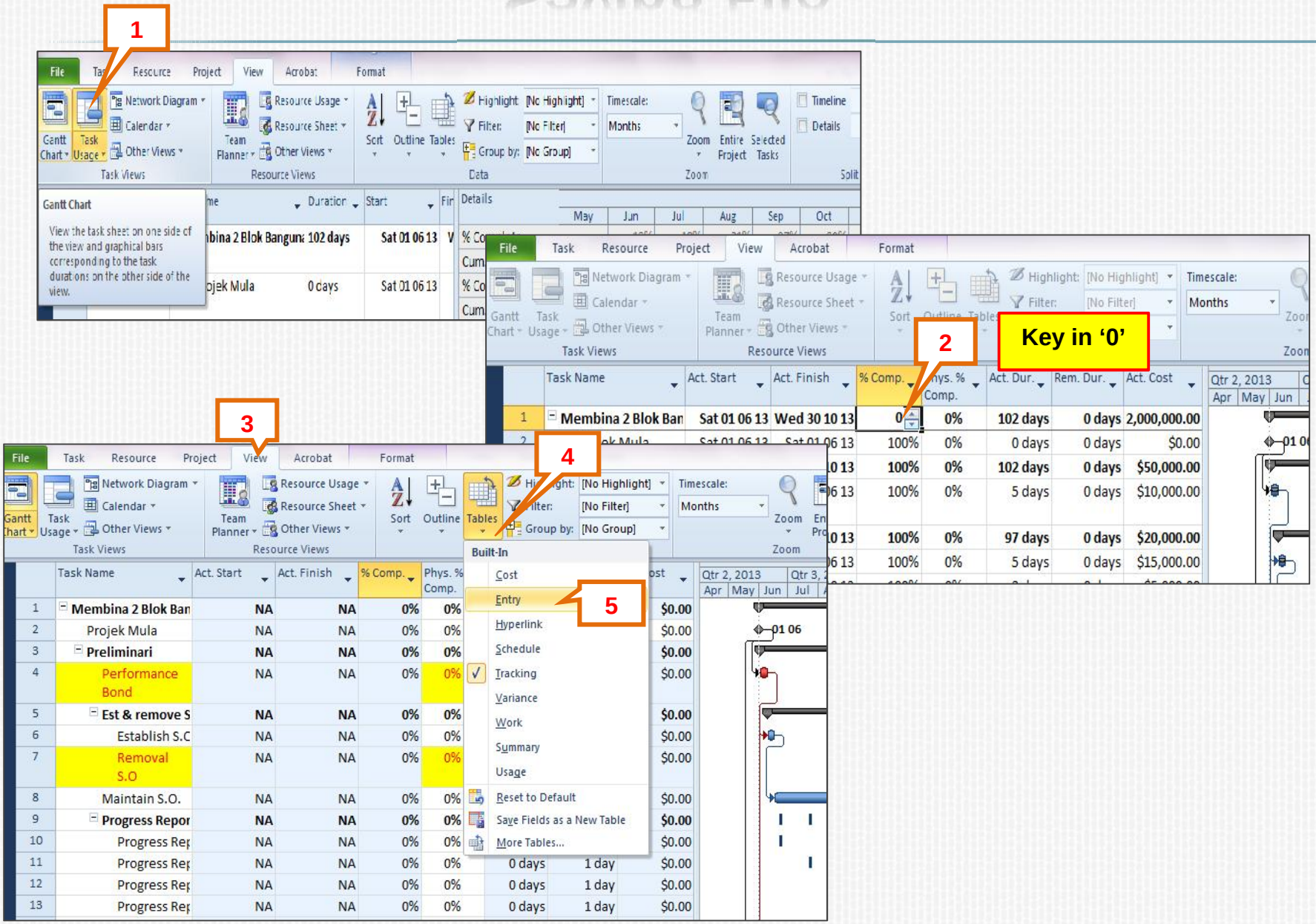
Monthly Physical S-Curve And Cash Flow

Repeat steps as previous slides and plot the S-Curve

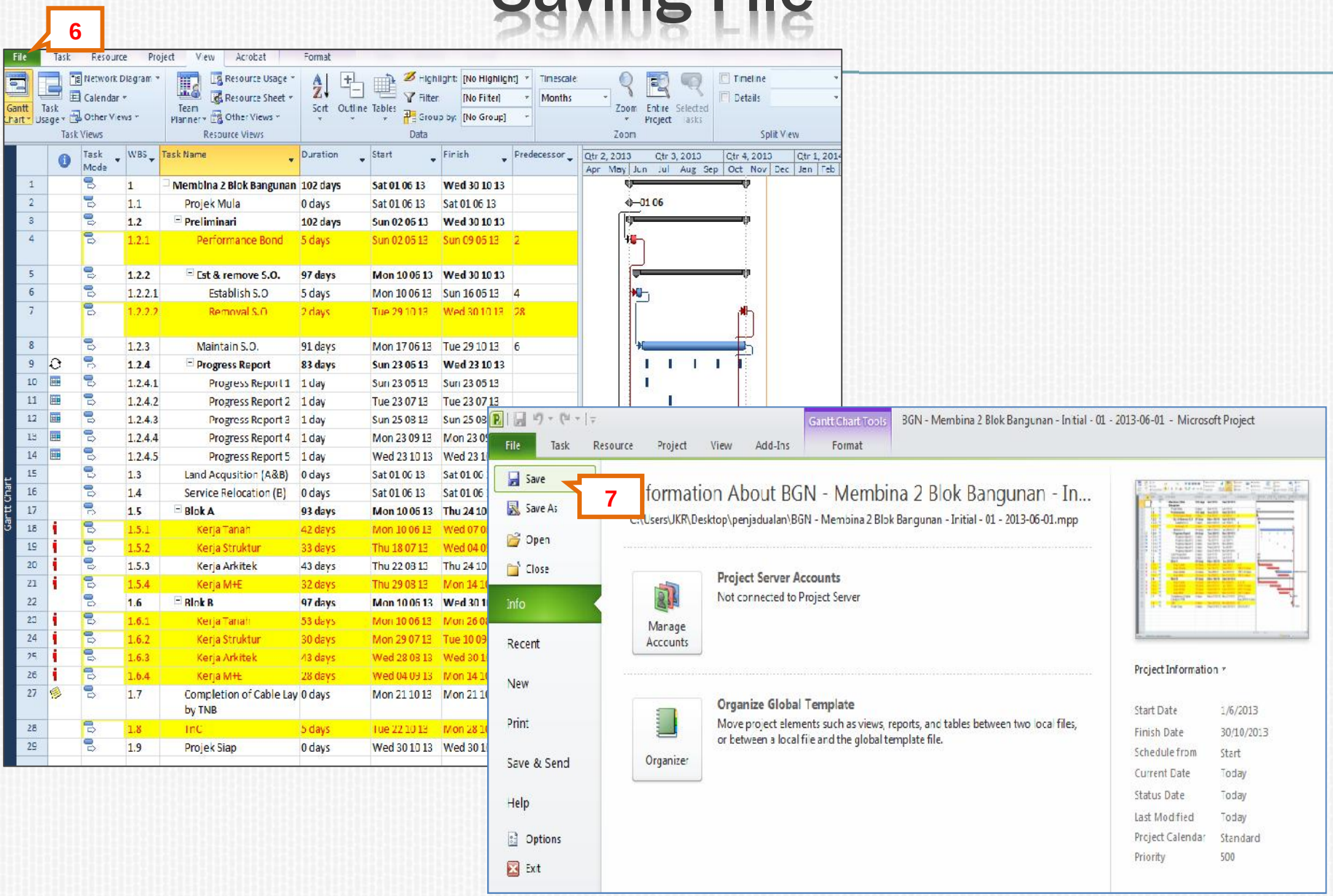


Saving File

Saving File


1
2
Key in '0'
3
4
5
Gantt Chart
View the task sheet on one side of the view and graphical bars corresponding to the task durations on the other side of the view.
Built-In
Cost
Entry
Hyperlink
Schedule
Tracking
Variance
Work
Summary
Usage
Reset to Default
Save Fields as a New Table
More Tables...

Saving File

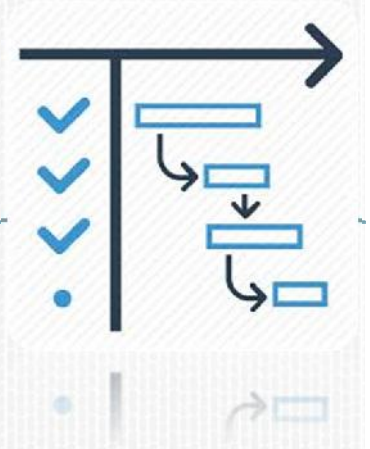

6
File
Task
Resource
Project
View
Acrobat
Format
Gantt Chart
Task Usage
Network Diagram
Calendar
Other Views
Task Views
Team Planner
Resource Usage
Resource Sheet
Other Views
Resource Views
Sort
Outline
Tables
Highlight: [No Highlight]
Filter: [No Filter]
Group by: [No Group]
Data
Timescale
Months
Zoom
Entire Project
Selected Tasks
Zoom
Timeline
Details
Split View
Task Mode
WBS
Task Name
Duration
Start
Finish
Predecessor
1 Membina 2 Blok Bangunan 102 days Sat 01 06 13 Wed 30 10 13
1.1 Projek Mula 0 days Sat 01 06 13 Sat 01 06 13
1.2 Preliminari 102 days Sun 02 06 13 Wed 30 10 13
1.2.1 Performance Bond 5 days Sun 02 06 13 Sun 09 06 13 2
1.2.2 Est & remove S.O. 97 days Mon 10 06 13 Wed 30 10 13
1.2.2.1 Establish S.O 5 days Mon 10 06 13 Sun 16 06 13 4
1.2.2.2 Removal S.O 2 days Tue 29 10 13 Wed 30 10 13 28
1.2.3 Maintain S.O. 91 days Mon 17 06 13 Tue 29 10 13 6
1.2.4 Progress Report 83 days Sun 23 06 13 Wed 23 10 13
1.2.4.1 Progress Report 1 1 day Sun 23 06 13 Sun 23 06 13
1.2.4.2 Progress Report 2 1 day Tue 23 07 13 Tue 23 07 13
1.2.4.3 Progress Report 3 1 day Sun 25 08 13 Sun 25 08
1.2.4.4 Progress Report 4 1 day Mon 23 09 13 Mon 23 09
1.2.4.5 Progress Report 5 1 day Wed 23 10 13 Wed 23 1
1.3 Land Acqusition (A&B) 0 days Sat 01 06 13 Sat 01 06
1.4 Service Relocation (B) 0 days Sat 01 06 13 Sat 01 06
1.5 Blok A 93 days Mon 10 06 13 Thu 24 10
1.5.1 Kerja Tanah 42 days Mon 10 06 13 Wed 07 0
1.5.2 Kerja Struktur 33 days Thu 18 07 13 Wed 04 0
1.5.3 Kerja Arkitek 43 days Thu 22 08 13 Thu 24 10
1.5.4 Kerja M+E 32 days Thu 29 08 13 Mon 14 1
1.6 Blok B 97 days Mon 10 06 13 Wed 30 1
1.6.1 Kerja Tanah 53 days Mon 10 06 13 Mon 26 0
1.6.2 Kerja Struktur 30 days Mon 29 07 13 Tue 10 09
1.6.3 Kerja Arkitek 43 days Wed 28 08 13 Wed 30 1
1.6.4 Kerja M+E 28 days Wed 04 09 13 Mon 14 1
1.7 Completion of Cable Lay by TNB 0 days Mon 21 10 13 Mon 21 1
1.8 TnC 5 days Tue 22 10 13 Mon 28 1
1.9 Projek Siap 0 days Wed 30 10 13 Wed 30 1
Gantt Chart
Qtr 2, 2013
Qtr 3, 2013
Qtr 4, 2013
Qtr 1, 2014
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
01 06
Gantt Chart Tools
BGN - Membina 2 Blok Bangunan - Initial - 01 - 2013-06-01 - Microsoft Project
File
Task
Resource
Project
View
Add-Ins
Format
Save
Save As
Open
Close
Info
Recent
New
Print
Save & Send
Help
Options
Exit
7
formation About BGN - Membina 2 Blok Bangunan - In...
C:\Users\JKR\Desktop\penjadualan\BGN - Membina 2 Blok Bangunan - Initial - 01 - 2013-06-01.mpp
Manage Accounts
Project Server Accounts
Not connected to Project Server
Organizer
Organize Global Template
Move project elements such as views, reports, and tables between two local files, or between a local file and the global template file.
Project Information
Start Date 1/6/2013
Finish Date 30/10/2013
Schedule from Start
Current Date Today
Status Date Today
Last Modified Today
Project Calendar Standard
Priority 500

MICROSOFT PROJECT

❖ Application of S-Curve : Financial S-Curve.

- Financial S-Curve shall be generated from Accepted Work Programme.
- **THIS** Financial S-Curve is to be used in SKALA (Unjuran Kewangan Kontrak).
- Progress reporting in SKALA is financial progress.

MICROSOFT PROJECT



❖ **Application of S-Curve : Physical S-Curve.**

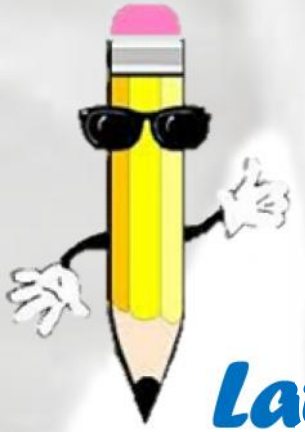
- Physical S-Curve is derived from % complete which is based on duration.
- Report of physical work progress shall be based on the physical s-curve.

MICROSOFT PROJECT

❖ FINAL SUMMARY.

- Financial S-Curve obtained from the approved Work Programme.
- More realistic reporting based on the approved Work Programme.
- Contractor has to perform based on the financial cash flow that has been planned.

MICROSOFT PROJECT



Latihan 3

Penyediaan S-Curve

Activity	Duration (weeks)	Cost (RM)	W1	W2	W3	W4	W5
A	4	24 k					
B	5	30 k					
C	4	16 k					
D	2	50 k					
E	2	80 k					
F	3	18 k					

Penyediaan S-Curve

- **CLASS EXERCISE**

  Q.1 Plot the Financial S-Curve

  Q.2 Plot the Physical S-Curve

  Q.3 Combine the Financial S-Curve & Physical S-Curve in the same chart

  Q.4 Why Physical S-Curve show higher than Financial S-Curve??

  Q.5 What is the progress of the works at week 3?

  Q.6 At week 3, how much can be claimed as payment for work done?

Penyediaan S-Curve

- **CLASS EXERCISE**

Q.7 At week 3, the contractor actually achieved the following works:

- A – done 1000/2000
- B – done 2 Of 5 column
- C – installed A/C units 1 of 4
- D – no progress (0%)
- E – no progress (0%)
- F – done 100/300

What's the progress & how much can be paid out?

Penyediaan S-Curve

- **RUMUSAN.**
  - ✓ Pastikan nilai bayaran yang disyorkan mengikut nilai kerja sebenar dan bukannya mengikut kemajuan fizikal
  - ✓ Setiap program kerja akan menunjukkan perbezaan di antara % kemajuan fizikal dan % kemajuan kewangan – Rujuk S-Curve untuk lihat perbezaan